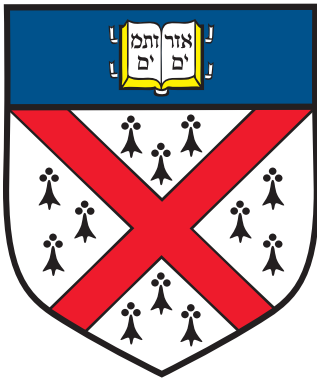


Yale College
Programs of Study
Fall and Spring Terms

2023–2024



BULLETIN OF YALE UNIVERSITY

Series 119 Number 1 May 5, 2023


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MISSION STATEMENT OF YALE COLLEGE The mission of Yale College is to seek exceptionally promising students of all backgrounds from across the nation and around the world and to educate them, through mental discipline and social experience, to develop their intellectual, moral, civic, and creative capacities to the fullest. The aim of this education is the cultivation of citizens with a rich awareness of our heritage to lead and serve in every sphere of human activity.

Yale College
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BUILDING ABBREVIATIONS

AKW	Arthur K. Watson Hall	KGL	Kline Geology Laboratory
BASS	Bass Center for Molecular and Structural Biology	KRN	Kroon Hall
BASSLB	Bass Library	L	Lawrance Hall
BATTEL	Battell Chapel	LC	Linsly-Chittenden Hall
BCMM	Boyer Center for Molecular Medicine	LEPH	Laboratory of Epidemiology and Public Health
BCT	Becton Engineering and Applied Science Center	LFOP	Leitner Family Observatory and Planetarium
BF	Benjamin Franklin College	LGH	Abby and Mitch Leigh Hall
BK	Berkeley College	LOM	Leet Oliver Memorial Hall
BM	Charles W. Bingham Hall	LORIA	Jeffrey H. Loria Center
BML	Brady Memorial Laboratory	LUCE	Henry R. Luce Hall
BR	Branford College	LWR	Lanman-Wright Memorial Hall
BRBL	Beinecke Rare Book and Manuscript Library	MC	Morse College
BRW35	35 Broadway	MEC	Malone Engineering Center
C	Connecticut Hall	ML	Mason Laboratory
CCAM	Center for Collaborative Arts and Media	MY	Pauli Murray College
CO451	451 College Street	OML	Osborn Memorial Laboratories
CO493	493 College Street	PC	Pierson College
CRB	Class of 1954 Chemistry Research Building	PH	Phelps Hall
CSC	Child Study Center	PR77	77 Prospect Street
D	Durfee Hall	PWG	Payne Whitney Gymnasium
DAVIES	Davies Auditorium, Becton Center	RDH	Rudolph Hall
DC	Davenport College	RKZ	Rosenkranz Hall
DL	Dunham Laboratory	S	Sage Hall
DOW	Dow Hall	SA10	10 Sachus Street
EM	Edwin McClellan Hall	SCL	Sterling Chemistry Laboratory
ES	Ezra Stiles College	SDQ	Sterling Divinity Quadrangle
ESC	Class of 1954 Environmental Science Center	SHM	Sterling Hall of Medicine
EVANS	Edward P. Evans Hall	SLB	Sterling Law Building
F	Farnam Hall	SM	Silliman College
GH	Grace Hopper College	SMH	Sprague Memorial Hall
GML	Greeley Memorial Laboratory	SML	Sterling Memorial Library
GRN	Holcombe T. Green, Jr., Hall	SPL	Sloane Physics Laboratory
HEN	Hendrie Hall	SSS	Sheffield-Sterling-Strathcona Hall
HLH17	17 Hillhouse Avenue	STOECK	Stoeckel Hall
HLH28	28 Hillhouse Avenue	SY	Saybrook College
HQ	Humanities Quadrangle	TAC	The Anlyan Center
JE	Jonathan Edwards College	TC	Trumbull College
K	Kirtland Hall	TD	Timothy Dwight College
KT	Kline Tower	TM432	432 Temple Street
		UT	University Theatre
		V	Vanderbilt Hall
		W	Welch Hall
		WALL53	53 Wall Street
		WALL81	81 Wall Street

WH55	55 Whitney Avenue
WL	Wright Laboratory
WL-W	Wright Laboratory West
WLH	William L. Harkness Hall
WTS	Watson Center
YCBA	Yale Center for British Art
YK212	212 York Street
YK220	220 York Street
YSB	Yale Science Building
YUAG	Yale University Art Gallery

FINAL EXAMINATION SCHEDULES

Rules governing the conduct of final examinations are given in Academic Regulations, section G, Reading Period and Final Examination Period.

An examination group number is assigned to every course. Examination group assignments are based on course meeting times, according to the following scheme. Hours shown are the times at which courses begin:

- | | | | |
|------|----------------------------|------|-------------------------|
| (31) | M, W, or F, 8:20 a.m. | | |
| (32) | M, W, or F, 9 or 9:25 a.m. | (22) | T or Th, 9 or 9:25 a.m. |
| (33) | M, W, or F, 10:30 a.m. | (23) | T or Th, 10:30 a.m. |
| (34) | M, W, or F, 11:35 a.m. | (24) | T or Th, 11:35 a.m. |
| (36) | M, W, or F, 1 or 1:30 p.m. | (26) | T or Th, 1 or 1:30 p.m. |
| (37) | M, W, or F, after 2 p.m. | (27) | T or Th, after 2 p.m. |

Note: With the exception of courses assigned to common examination groups, a change in class meeting time will alter the examination time.

Courses with multiple sections but a common examination are assigned to an examination group from (61) to (69). Typical assignments include (but are not limited to): (61) foreign languages; (63) introductory-level English; (64) introductory economics; (65) physics; (69) introductory mathematics.

The examination group (50) is assigned to courses whose times are published HTBA, or whose times belong to more than one of the groups listed above.

Courses in group (o) usually have no regular final examination, concluding instead with a term essay or other final exercise. Instructors of such courses may schedule a regular final examination based on the course starting time. The time slots of 2 p.m. during the last day of the reading period and 7 p.m. on the last day of the final exam period are available for makeup final exams only.

Final examination dates and times for Fall 2023 and Spring 2024 are:

Fall	9 a.m.	2 p.m.	7 p.m.	Spring	9 a.m.	2 p.m.	7 p.m.
Dec. 14 Th		*	(32)	May 2 Th		*	(63)
Dec. 15 F	(61)	(24)		May 3 F	(23)	(61)	
Dec. 16 Sa	(64)	(26)	(22)	May 4 Sa	(69)	(24)	(31)
Dec. 17 Su		(34)	(37)	May 5 Su		(27)	(36)
Dec. 18 M	(65)	(33)	(27)	May 6 M	(64)	(34)	(32)
Dec. 19 Tu	(63)	(69)	(31)	May 7 Tu	(26)	(65)	(37)
Dec. 20 W	(36)	(23)	*	May 8 W	(22)	(33)	*

* Makeup final exams only

A student who in a given term elects two courses with the same examination group number will be charged \$35 for a makeup examination. (See Academic Regulations, section H, Completion of Course Work, "Postponement of Final Examinations.")

KEY TO COURSE LISTINGS

AFAM	Course subjects are listed by three- or four-letter abbreviations in capitals. See the complete list of Subject Abbreviations.
MATH 112a or b	The letters “a” and “b” after a course number denote fall- and spring-term courses, respectively. A course designated “a or b” is the same course given in both terms.
Staff	Staff is listed when an instructor has yet to be assigned to a course. Refer to Yale Course Search (https://courses.yale.edu) for individual section instructors.
Prerequisite: MATH 120	Prerequisites and recommendations are listed at the end of the course description.
L5, HU	Language courses are designated L ₁ (first term of language study), L ₂ (second term), L ₃ (third term), L ₄ (fourth term), or L ₅ (beyond the fourth term). Other distributional designations are QR, WR, HU, SC, and SO, representing quantitative reasoning, writing, humanities and arts, science, and social science, respectively. See “Distributional Requirements” under “Requirements for the B.A. or B.S. Degree” (http://next.catalog.yale.edu/ycps/academic-regulations/requirements-for-ba-bs-degree/) in the Academic Regulations.
0.5 Course cr	Most courses earn one course credit per term; variations are noted.
RP	A course designated “RP” meets during the reading period. See “Reading Period and Final Examination Period” (http://next.catalog.yale.edu/ycps/academic-regulations/reading-period-final-examination-period/) in the Academic Regulations.
[ASTR 320]	Courses in brackets are not offered during the current year but are expected to be given in the succeeding academic year.
*HIST 012	All seminars are starred and enrollment is limited. The instructor’s permission may be required.
ITAL 310/LITR 183	A course with multiple titles, i.e., with two or more departments in the title line, counts toward the major in each department where it appears.
TR	The abbreviation “TR” denotes a literature course with readings in translation.
YC English: 18th/19th Century	Courses with department-specific designations are applied toward the requirements of certain majors. See the program descriptions of the relevant majors.
HIST 130J, MCDB 201L	A capital J or L following the course number denotes a History departmental seminar or a science laboratory, respectively.

SUBJECT ABBREVIATIONS

ACCT	Accounting
AFAM	African American Studies
AFST	African Studies
AKKD	Akkadian
AMST	American Studies
AMTH	Applied Mathematics
ANTH	Anthropology
APHY	Applied Physics
ARBC	Arabic
ARCG	Archaeological Studies
ARCH	Architecture
ARMN	Armenian
ART	Art
ASL	American Sign Language
ASTR	Astronomy
BENG	Biomedical Engineering
BIOL	Biology
BRST	British Studies
BURM	Burmese
CENG	Chemical Engineering
CGSC	Cognitive Science
CHEM	Chemistry
CHLD	Child Study Center
CHNS	Chinese
CLCV	Classical Civilization
CLSS	Classics
CPAR	Computing and the Arts
CPSC	Computer Science
CSEC	Computer Science and Economics
CSLI	Computing and Linguistics
CZEC	Czech
DEVN	DeVane Lecture Course
DRST	Directed Studies
DUTC	Dutch
E&EB	Ecology and Evolutionary Biology
EALL	East Asian Languages and Literatures
EAST	East Asian Studies
ECON	Economics
EDST	Education Studies
EENG	Electrical Engineering
EGYP	Egyptian
ENAS	Engineering and Applied Science
ENGL	English Language and Literature
ENRG	Energy Studies
ENVE	Environmental Engineering
EP&E	Ethics, Politics, and Economics
EPS	Earth and Planetary Sciences

ER&M	Ethnicity, Race, and Migration
EVST	Environmental Studies
F&ES	Forestry & Environmental Studies
FILM	Film and Media Studies
FNSH	Finnish
FREN	French
GLBL	Global Affairs
GMAN	Germanic Languages and Literatures
GREK	Ancient Greek
HEBR	Hebrew
HGRN	Hungarian
HIST	History
HLTH	Global Health Studies
HMRT	Human Rights
HNDI	Hindi
HSAR	History of Art
HSHM	History of Science, Medicine, and Public Health
HUMS	Humanities
INDN	Indonesian
ITAL	Italian Studies
JAPN	Japanese
JDST	Judaic Studies
KHMR	Khmer
KREN	Korean
LAST	Latin American Studies
LATN	Latin
LING	Linguistics
LITR	Comparative Literature
MATH	Mathematics
MB&B	Molecular Biophysics and Biochemistry
MCDB	Molecular, Cellular, and Developmental Biology
MENG	Mechanical Engineering
MGRK	Modern Greek
MMES	Modern Middle East Studies
MTBT	Modern Tibetan
MUSI	Music
NAVY	Naval Science
NELC	Near Eastern Languages and Civilizations
NSCI	Neuroscience
OTTM	Ottoman
PERS	Persian
PHIL	Philosophy
PHYS	Physics
PLSC	Political Science
PLSH	Polish
PNJB	Punjabi
PORT	Portuguese
PSYC	Psychology
RLST	Religious Studies
ROMN	Romanian

RSEE	Russian, East European, and Eurasian Studies
RUSS	Russian
S&DS	Statistics and Data Science
SAST	South Asian Studies
SBCR	Bosnian–Croatian–Serbian
SCIE	Science
SKRT	Sanskrit
SLAV	Slavic Languages and Literatures
SNHL	Sinhala
SOCY	Sociology
SPAN	Spanish
SPEC	Special Divisional Major
STCY	Study of the City
SWAH	Kiswahili
TAML	Tamil
TBTN	Classical Tibetan
THST	Theater and Performance Studies
TKSH	Turkish
TWI	Twi
UKRN	Ukrainian
URBN	Urban Studies
USAF	Aerospace Studies
VIET	Vietnamese
WGSS	Women’s, Gender, and Sexuality Studies
WLOF	Wolof
YDSH	Yiddish
YORU	Yorùbá
ZULU	isiZulu

TABLE OF ACCELERATION CREDIT

The table below shows how you gain and lose acceleration credit. Two is the maximum number of acceleration credits that can be earned in any subject.

In the left column are the criteria for granting acceleration credit based on AP scores. Students may receive acceleration credits by earning scores comparable to AP test scores on such tests as the International Baccalaureate (IB) higher-level examinations or the General Certificate of Education (GCE) A-level examinations. In subjects for which an AP score of 4 or 5 earns acceleration credit, a score of 6 or 7 on II B higher-level exams, or B or A on A-levels, is required; in subjects that require an AP score of 5 for acceleration credit, a score of 7 on the IB higher-level or an A on the A-level is required.

In the middle column are the courses whose successful completion—in the first year with a grade of B, B+, A–, or A—yields acceleration credit. In the right column are the courses resulting in the forfeit of acceleration credit.

In general, acceleration credit in a subject is forfeited by completing any course (other than a laboratory) with a lower number than the lowest-numbered course earning acceleration credit in the subject. Courses in this table were offered in 2022–2023 or are expected to be offered in 2023–2024. Except where noted, one acceleration credit is forfeited for each course credit earned in courses listed in the third column.

The University reserves the right to modify this table to reflect current course offerings. Regardless of the availability of AP tests, only the departments listed below award acceleration credit. The information in this table pertains to the Class of 2027.

	Acceleration Credit Awarded for AP Scores	Acceleration Credit Awarded for First-Year Courses	Courses Resulting in the Forfeit of Acceleration Credit
Chemistry	None	2 credits for CHEM 174, CHEM 175, CHEM 220, CHEM 221, CHEM 230, CHEM 252, CHEM 332, or CHEM 333.	If 2 acceleration credits awarded: 2 lost by CHEM 161, CHEM 163, or CHEM 165, or any course numbered CHEM 109 or lower.
Computer Science	None	1 credit for CPSC 201 or CPSC 223; 2 credits for CPSC 323.	If 1 acceleration credit awarded: 1 lost by CPSC 112. If 2 awarded: 2 lost by CPSC 112, 1 lost by CPSC 201 or CPSC 223.

Economics	None	1 credit in microeconomics for ECON 121 or ECON 125; 1 credit in macroeconomics for ECON 122 or ECON 126.	Microeconomics credit lost by ECON 108, ECON 110, or ECON 115; macroeconomics credit lost by ECON 111 or ECON 116.
English	1 credit for 5 on either AP English Lang and Comp or AP English Lit and Comp tests.	1 credit for ENGL 120 or ENGL 121; 1 credit for 1 term, 2 credits for 2 terms of ENGL 125, ENGL 126, ENGL 127, ENGL 128, ENGL 129, ENGL 130, or DRST 001, DRST 002.	ENGL 114, ENGL 115
Languages	Chinese, French, German, Latin, and Spanish only: 2 credits for 5 on AP test. For Italian: 1 credit for 5 on AP test. No additional credit for multiple tests in a single language. All other languages: None.	All languages listed in first column, except Italian: 2 credits for a scheduled L5 course. For Italian: 1 credit for a scheduled L5 course.	All languages listed in first column except Italian: 2 acceleration credits lost for L1, L2, L3, L1-L2 or L3-L4 course; 1 lost for L4 course. For Ital: 1 acceleration credit lost in both instances.
History of Art	1 credit for 5 on AP test in Art History.	None	None
Mathematics	1 credit for 5 on AP Calculus AB test; 1 credit for 4 on Calculus BC test; 2 credits for 5 on Calculus BC test.	1 credit for MATH 115, MATH 116, or MATH 118; 2 credits for 120 or higher-numbered courses.	If 2 acceleration credits awarded: 2 lost by any course numbered MATH 112 or lower; 1 lost by MATH 115, MATH 116, or MATH 118. If 1 awarded: 1 lost by any course numbered 112 or lower.

Music	1 credit for 5 on AP Music Theory test.	None	None
Physics	1 credit for 5 on either AP Physics C test, with 5 on AP Calculus AB test or 4 or 5 on Calculus BC test. 2 credits for 5 on both parts of Physics C test with requisite score on Calculus AB or BC test. No credit for AP Physics 1 or 2 tests.	2 credits for PHYS 260, PHYS 261 or for course numbered PHYS 400 or higher.	If 1 acceleration credit awarded, 1 lost, and if 2 acceleration credits awarded, 2 lost, by any course numbered PHYS 201 or lower.

YALE COLLEGE ADMINISTRATIVE OFFICERS

ADMINISTRATIVE OFFICERS

Peter Salovey, Ph.D., President of the University

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Pericles Lewis, Ph.D., Dean of Yale College

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Chamonix Adams, M.A., Assistant Dean of Student Affairs

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Katie Shirley, J.D., Deputy Title IX Coordinator

Shonna Marshall, M.S., University Registrar

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Berkeley College, Brianne Bilsky, Ph.D.
Branford College, Maria del Mar Galindo, MPhil.
Davenport College, Ryan A. Brasseaux, Ph.D.
Ezra Stiles College, Murphy Temple, Ph.D.
Grace Hopper College, David Francis, Ph.D.
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Morse College, Blake Trimble, Ph.D.
Pauli Murray College, Alexander Rosas, J.D., Ph.D.
Pierson College, Tasha Hawthorne, Ph.D.
Saybrook College, Ferentz Lafargue, Ph.D.
Silliman College, Tycie Nakia Coppett, Ph.D.
Timothy Dwight College, Sarah Mahurin, Ph.D.
Trumbull College, Surjit Chandhoke, Ph.D.

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Jeremiah Quinlan, M.B.A., Dean of Undergraduate Admissions and Financial Aid
Kerry Worsencroft, B.S., Deputy University Director of Financial Aid

YALE COLLEGE CALENDAR WITH PERTINENT DEADLINES

This calendar includes a partial summary of deadlines given in the Academic Regulations and in the Yale College online publication *Undergraduate Regulations*. Unless otherwise specified, references are to sections in the Academic Regulations, and deadlines fall at 5 p.m. (EST). Dates are subject to change. *Updated May 9, 2023.*

2022-2023 Yale College Calendar with Pertinent Deadlines

FALL 2023

Aug. 29	T	Required check-in meetings for upper-level students (Class of 2026, 9 a.m.; Class of 2025, 9:45 a.m.; Class of 2024, 10:30 a.m.).
Aug. 29	T	Add/drop period opens; 8:00 a.m.
Aug. 30	W	Fall classes begin.
Sept. 1	F	Friday classes do not meet; Monday classes meet instead.
Sept. 4	M	Labor Day; classes do not meet.
Sept. 5	T	Add/Drop period ends, 5:00 p.m.
Sept. 5	T	All students planning to complete degree requirements at the end of the fall term must file a petition by this date.
Sept. 13	W	Withdrawal from Yale College on or before this date entitles a student to a full rebate of fall-term tuition. See Undergraduate Regulations.
Sept. 13	W	Final deadline to apply for fall-term Leave of Absence. See Leave of Absence, Deferral, Withdrawal, and Reinstatement.
Sept. 21	Th	Last day to withdraw from a course offered in the first half of the fall term without the course appearing on the transcript.
Sept. 23	S	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-half of fall-term tuition. See Undergraduate Regulations.
Oct. 10	T	Deadline to apply for spring 2023 Term Abroad, 11:59 p.m.
Oct. 13	F	Last day of courses offered in the first half of the fall term.
Oct. 13	F	Last day to withdraw from a course offered in the first half of the fall term.
Oct. 13	F	Last day to convert from a letter grade to the Cr/D/F option in a course offered in the first half of the fall term.
Oct. 16	M	Courses offered in the second half of the fall term begin.
Oct. 17	T	October recess begins after last class.
Oct. 23	M	Classes resume, 8:20 a.m.
Oct. 27	F	Midterm.
Oct. 27	F	Last day to withdraw from a fall full-term course without the course appearing on the transcript.
Oct. 27	F	Deadline to apply for double credit in a single-credit course.
Oct. 27	F	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-quarter of the term's tuition.
Nov. 9	Th	Last day to withdraw from a course offered in the second half of the fall term without the course appearing on the transcript.
Nov. 17	F	November recess begins after last class.

Nov. 27	M	Classes resume, 8:20 a.m.
Nov. 30	Th	Last day to relinquish on-campus housing for the spring term without charge (Undergraduate Regulations).
Dec. 8	F	Classes end; reading period begins.
Dec. 8	F	Last day to convert from a letter grade to the Cr/D/F option for a full-term course and/or a course offered in the second half of the fall term.
Dec. 8	F	Last day to withdraw from a full-term course and/or a course offered in the second half of the fall term.
Dec. 14	Th	Reading period ends, 5:00 p.m.
Dec. 14	Th	Final examinations begin, 7:00 p.m.
Dec. 14	Th	Deadline for all course assignments, other than term papers and term projects. This deadline can be extended only by a Temporary Incomplete authorized by the student's residential college dean.
Dec. 20	W	Final examinations end, 5:30 p.m.; winter recess begins.
Dec. 20	W	Deadline for all term papers and term projects. This deadline can be extended only by a Temporary Incomplete authorized by the student's residential college dean.
Dec. 21	Th	Residences close, 12 noon.

SPRING 2024

Jan. 2	T	Fall-term final grades due.
Jan. 8	M	Add/drop period opens, 8:30 a.m.
Jan. 9	T	Applications for Yale 2024 Summer Session Abroad, Non-Yale 2024 Summer Abroad, and Yale 2024-2025 Fall and Full Year Abroad open.
Jan. 10	W	Residences open, 9:00 a.m.
Jan. 15	M	Martin Luther King Jr. Day; classes do not meet.
Jan. 16	T	Spring-term classes begin, 8:20 a.m.
Jan. 19	F	Add/drop period closes, 5:00 p.m.
Jan. 19	F	Friday classes do not meet; Monday classes meet instead.
Jan. 19	F	Last day for students in the Class of 2024 to petition for permission to complete the requirements of two majors.
Jan. 30	T	Final deadline to apply for a spring-term Leave of Absence (section J).
Jan. 30	T	Withdrawal from Yale College on or before this date entitles the student to a full rebate of spring-term tuition (Undergraduate Regulations).
Feb. 6	T	Last day to withdraw from a course offered in the first half of the spring term without the course appearing on the transcript.
Feb. 6	T	Application deadline for Yale 2024 Summer Session Abroad closes, 11:59 p.m.
Feb. 9	F	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-half of spring-term tuition (Undergraduate Regulations).
Feb. 28	W	Last day to withdraw from a course offered in the first half of the spring term.
Feb. 28	W	Last day to convert from a letter grade to Cr/D/F option for a course offered in the first half of the spring term.
Feb. 29	Th	Courses offered in the second half of the spring term begin.
Mar. 5	T	Applications for 2024 Non-Yale Summer Broad close, 11:59 p.m.
Mar. 8	F	Midterm.
Mar. 8	F	Spring recess begins, 5:30 p.m.

Mar. 8	F	Last day to withdraw from a spring full-term course without the course appearing on the transcript.
Mar. 8	F	Deadline to apply for double credit in a single-credit course.
Mar. 8	F	Withdrawal from Yale College on or before this date entitles a student to a rebate of one-quarter of the term's tuition (Undergraduate Regulations).
Mar. 25	M	Classes resume, 8:20 a.m.
Apr. 2	T	Deadline to apply for a fall-term 2024 Term Abroad or a 2024–2025 Year Abroad, 11:59 p.m.
Apr. 4	Th	Last day to withdraw from a spring second-half course without the course appearing on the transcript.
Apr. 26	F	Classes end; reading period begins.
Apr. 26	F	Last day to convert from a letter grade to Cr/D/F option for a full-term course and/or a course offered in the second half of the spring term.
Apr. 26	F	Last day to withdraw from a full-term course and/or a course offered in the second half of the spring term.
May 1	W	Applications for fall-term Leaves of Absence due.
May 2	Th	Reading period ends, 5:00 p.m.
May 2	Th	Final examinations begin, 7:00 p.m.
May 2	Th	Deadline for all course assignments, other than term papers and term projects. This deadline can be extended only by a Temporary Incomplete authorized by the student's residential college dean.
May 8	W	Examinations end, 5:30 p.m.
May 8	W	Deadline for all term papers and term projects. This deadline can be extended only by a Temporary Incomplete authorized by the student's residential college dean.
May 9	Th	Residences close for underclassmen, 12 noon.
May 10	F	Final grades due for graduating seniors.
May 15	W	Final grades due for continuing students.
May 20	M	University Commencement.
May 21	T	Residences close for seniors, 12 noon.

SUMMER SESSION 2024

Courses offered during the summer are offered through Yale Summer Session. Further information is available from the Yale Summer Session office or on the website.

VETERANS AFFAIRS: BILL PAYMENT AND PENDING MILITARY BENEFITS

Yale will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other facilities, or the requirement that a student borrow additional funds, on any student because of the student's inability to meet their financial obligations to the institution, when the delay is due to the delayed disbursement of funding from VA under chapter 31 or 33.

Yale will permit a student to attend or participate in their course of education during the period beginning on the date on which the student provides to Yale a certificate of eligibility for entitlement to educational assistance under chapter 31 or 33 and ending on the earlier of the following dates: (1) the date on which payment from VA is made to Yale; (2) ninety days after the date Yale certifies tuition and fees following the receipt of the certificate of eligibility.

YALE UNIVERSITY IDENTIFICATION CARDS

GUIDELINES AND EXPECTATIONS

Yale University issues identification (ID) cards to faculty, staff, and students. ID cards support the community's safety and security by allowing access to many parts of campus: dining halls and cafés, residential housing, libraries and athletic centers, workspaces, labs, and academic buildings. Cultivating an environment of public safety requires the entire community to work together to ensure appropriate use of our spaces, as well as to foster a sense of belonging for all members of our community.

University policies, regulations, and practice require all students, faculty, and staff to carry their Yale ID card on campus and to show it to university officials on request. Yale ID cards are not transferable. Community members are responsible for their own ID card and should report lost or stolen cards immediately to the Yale ID Center: <https://idcenter.yale.edu/>.

Members of the University community may be asked to show identification at various points during their time at Yale. This may include but not be limited to situations where: individuals are entering areas with access restrictions; for identification in emergency situations; to record attendance at a particular building or event; or other academic or work-related reasons related to the safe and effective operation and functioning of Yale's on-campus spaces.

For some members of our community, based on the needs and culture of their program, department and/or characteristics of their physical spaces, being asked to show an ID card is a regular, even daily, occurrence. However, for others it may be new or infrequent. For some, being asked to produce identification can be experienced negatively, as a contradiction to a sense of belonging or as an affront to dignity. Yale University is committed to enhancing diversity, supporting equity, and promoting an environment that is welcoming, inclusive, and respectful. University officials requesting that a community member show their ID card should remain mindful that the request may raise questions and should be prepared to articulate the reasons for any specific request during the encounter. In addition, individuals requesting identification should also be prepared to present their own identification, if requested.

A MESSAGE FROM THE DEAN OF YALE COLLEGE

We officially call this publication the *Yale College Programs of Study*, but generations of students and faculty have known it simply as the blue book. A companion to the roughly 2,000 courses to be offered in Yale College in 2023–2024, the blue book is a resource to use as you learn about the curriculum, intended to complement the counsel of faculty and deans who can guide you. Here you will find the guiding principles of Yale College's liberal arts education, including its distributional and major requirements. Use it to explore old and new interests in ways that will lead you to become cultivated citizens of the world. Our expectation is that when you leave Yale, you will not only have acquired a trained mind, broadened knowledge, and a greater sense of citizenship; you also will have come to a deeper understanding of the continuing joy of disciplined learning.

We hope that the blue book will stir you to consider courses of study that you had never before imagined and lead you deeper into intellectual worlds you already have explored. It represents the heart and soul of what the Yale faculty holds in promise for you. It comes to you with our best wishes for a successful year.

Pericles Lewis
Douglas Tracy Smith Professor of Comparative Literature
Dean of Yale College

I. YALE COLLEGE

The Undergraduate Curriculum

Yale College, the undergraduate branch of Yale University, offers instruction in more than 120 subjects spanning the liberal arts, sciences, and engineering. Its signature residential college system and expansive extracurricular programs sustain a supportive community of students, staff, scholars, and researchers. In 1701, the Connecticut legislature passed an act to establish “a collegiate school” in which “Youth may be instructed in the Arts & Sciences” and “fitted for Publick employment.” The collegiate school became Yale College in 1718. For more than three centuries, Yale has provided leadership in undergraduate education in the liberal arts and sciences. While the university eventually grew to incorporate graduate and professional education, all undergraduate education at Yale continues to be provided through the College. Now in its fourth century, the College remains a recognized leader worldwide.

Yale College offers a liberal education that aims to:

- Educate talented students of diverse backgrounds to lead and serve in a complex and changing society.
- Provide a supportive residential community of learning in which social experience and the free exchange of ideas underpin the pursuit of knowledge.
- Cultivate both the broad intellectual, moral, civic, and creative capacities and the more specialized skills that will allow students to thrive beyond the college gates.
- Draw on the distinctive strengths and traditions of Yale University as a globally recognized leader across the arts, humanities, social sciences, sciences, engineering, and the professions.

Yale seeks to educate students who are broad-minded and autonomous, capable of making judgments and taking responsibility for their decisions. A Yale College education should encourage students to become curious, engaged citizens. It should also prepare them well for their professional lives and further educational opportunities and help them develop as active learners who thrive in complex environments.

This philosophy of education corresponds with that expressed in the Yale Report of 1828, which draws a distinction between “expanding [the mind’s] powers, and storing it with knowledge.” Acquiring facts is important, but learning how to think critically and creatively in a variety of ways takes precedence.

The College encourages students to learn broadly and deeply. Each student completes a major in one of the College’s 80 programs or departments. The distributional requirements described in this bulletin ensure that students learn about a variety of subjects and intellectual approaches. In addition, the College requires that all students take courses that develop certain foundational skills— writing, quantitative reasoning, and language competency— that hold the key to opportunities in later study and later life. In each skill, students are required to travel some further distance from where they were in high school so that each competency matures and deepens. A student working toward a bachelor’s degree normally takes four or five courses each term and receives the B.A. or B.S. degree after completing thirty-six term courses or their equivalent

in eight terms of enrollment. A candidate for the bachelor's degree is required, in completing the thirty-six term courses, to fulfill the distributional requirements, as well as the requirements of a major program.

In a time of increasing globalization, both academic study of the international world and firsthand experience of foreign cultures are crucial. Yale College urges all of its students to consider a summer, a term, or a year abroad sometime during their college careers.

Yale College forms part of a great university dedicated to the pursuit of light and truth. Yale encourages students to participate in the conversation of a scholarly community that defines the pursuit of knowledge in such a university. While the College's goal of educating talented young people for future leadership has not changed since its founding, Yale has continually expanded in the range of subjects it teaches, the excellence of its curriculum, pedagogy, and research, and the diversity of its student body. It currently offers instruction to over 6,000 students. For almost a century, the residential colleges have created enduring communities that are an essential part of the broader Yale ecosystem. As a distinctive community of learning, Yale College also seeks to instill an ethos of service—a sense of belonging on campus and a call to contribute beyond the college gates. To continue the search for truth by the light of learning requires respect and tolerance and a willingness to listen to one another. Most of all, it requires an openness on the part of each member of the Yale community—an openness to learn and a humility about how little each of us actually knows.

Distributional Requirements

The distributional requirements described below are intended to ensure that all graduates of Yale College have an acquaintance with a broad variety of fields of inquiry and approaches to knowledge. These requirements are the only specific rules limiting the selection of courses outside a student's major program. The distributional requirements are intended as starting points, and students should feel free to pursue even greater breadth with their electives.

DISTRIBUTIONAL REQUIREMENTS FOR THE BACHELOR'S DEGREE

Students must fulfill disciplinary area requirements by taking no fewer than two course credits in the humanities and arts, two in the sciences, and two in the social sciences. Students must also fulfill skills requirements by taking at least two course credits in quantitative reasoning, two course credits in writing, and courses to further their language proficiency. Depending on their level of accomplishment in foreign languages at matriculation, students may fulfill this last requirement with one, two, or three courses or by certain combinations of course work and approved study abroad.

Area requirement in the humanities and arts (two course credits) Study of the humanities and arts—those subjects that explore how we chronicle and interpret the expression of human experience—cultivates an appreciation of the past and enriches our capacity to participate in the life of our times. By engaging other cultures and civilizations, both ancient and modern, students gain insight into the experiences of others while also obtaining an opportunity to critically examine their own. Through the study and practice of the arts, students analyze, create, and perform

works allowing them to explore or experience firsthand the joy and discipline of artistic expression. Rigorous and systematic study of the humanities and the arts fosters tolerance for ambiguity and sophisticated analytic skills that provide essential preparation for careers in most areas of contemporary life. Independently of any specific application, study of these subjects teaches understanding and appreciation of the highest achievements of humanity.

Area requirement in the sciences (two course credits) Science is the study of the principles of the physical and the natural world through observation and experimentation. The theoretical exploration, experimental analysis, and firsthand problem solving inextricably linked to scientific inquiry give rise to new discoveries and modes of thought. Acquiring a broad view of what science is, what it has achieved, and what it might continue to achieve is an essential component of a college education. Close study of a science develops critical faculties that educated citizens need to evaluate natural phenomena and the opinions of experts, and to make, understand, and evaluate arguments about them. Scientific literacy teaches students to appreciate the beauty and complexity of the natural and physical worlds often hidden from casual observation.

Area requirement in the social sciences (two course credits) Broadly conceived, the social sciences study human social behavior and networks using a variety of methodologies and both qualitative and quantitative analysis. The disciplines in the social sciences teach us about who we are as social beings and help us appreciate the perspective of the other as well as the particularities of society. Methods in the social sciences test for connections between the familiar and the foreign, the traditional and the contemporary, the individual and the group, the predicted result and the anomalous outcome. Their theories propose explanations for the entire range of human phenomena. Study of the social sciences prepares students for lives of civic engagement and develops a nuanced sense of the world around them.

Skills requirement in language (at least one course, depending on preparation) The study of languages has long been one of the distinctive and defining features of a liberal arts education and, in the world of the twenty-first century, knowledge of more than one language is increasingly important. The benefits of language study include enhanced understanding of how languages work, often resulting in heightened sophistication in the use of one's own language; unmediated access to texts otherwise available only in translation, or not at all; and the ability to recognize and cross cultural barriers.

All Yale College students are required to engage in study of a language, regardless of the level of proficiency at the time of matriculation. Depending on their preparation, students take one, two, or three terms of language study to fulfill the distributional requirement. Students may complete an approved study abroad program in lieu of intermediate or advanced language study at Yale. Details of the language distributional requirement are listed under Distributional Requirements in the Academic Regulations, section A, Requirements for the B.A. or the B.S. Degree.

Skills requirement in quantitative reasoning (two course credits) The application of quantitative methods is critical to many different disciplines. Mathematics and statistics are basic tools for the natural and the social sciences, and are useful in many of the humanities as well. Information technology and the rigorous dissection of logical arguments in any discipline depend on algorithms and formal logical constructs. An

educated person must be able to use quantitative information to make, understand, and evaluate arguments.

Many quantitative reasoning courses are taught through the departments of Mathematics, Statistics and Data Science, Computer Science, Economics, and through undergraduate courses offered in the School of Engineering and Applied Science. Quantitative reasoning courses may also be found in a range of other programs.

Skills requirement in writing (two course credits) The ability to write well is one of the hallmarks of a liberally educated person and is indispensable to leadership in most fields of endeavor. As students strengthen their writing skills, they develop the ability to express more nuanced thought and intellectual practices that distinguish active from passive learners.

The English department in particular offers many courses that focus on writing clearly and cogently, and courses in other departments stress writing skills within the context of their disciplines. Hundreds of courses, spanning most academic programs, give special attention to writing. Such courses, designated WR, do not necessarily require more writing than other courses; rather, they provide more help with writing assignments. Some characteristics of WR courses include writing to discover ideas, learning from model essays, detailed feedback, and reviewing writing in small groups. Note that credit toward the writing requirement cannot be earned in courses in creative writing (specifically poetry, fiction, and playwriting), nor in courses conducted in a language other than English.

Major Programs

All candidates for a bachelor's degree in Yale College must elect a major program. The requirements for a major are described in general terms in the sections below, and in more detail under Subjects of Instruction. Students should acquaint themselves fully with all the requirements of the major they plan to enter, considering not only the choice of courses in the current term but also the plan of their entire work in the last two or three years in college. Advising in the major is provided by the director of undergraduate studies (DUS) or an adviser designated by the department or program, and students should plan a schedule of courses in their major in consultation with them. In addition, after a student has declared a major, the DUS or the DUS's designee is normally the person who reviews the student's course schedule.

Students seeking the B.S. or the B.A. degree with a major in science or engineering are expected to declare their majors at the beginning of sophomore year, although a student who has completed the prerequisites may elect a science major later. Sophomores interested in majoring in science or engineering should discuss their major course of studies with the director of undergraduate studies or an adviser designated by the department or program. Students seeking the B.A. degree with a major in a field other than science or engineering are expected to declare their major by the end of the sophomore year and should do so no later than the beginning of the junior year.

SELECTION OF A MAJOR

In designing a program of study, the student ought to plan for depth of concentration as well as breadth of scope. To study a subject in depth can be rewarding and energizing and can form the basis of the interests and occupations of a lifetime. Knowledge advances by specialization, and one can gain some of the excitement of discovery by pressing toward the outer limits of what is known in a particular field. Intense study of a seemingly narrow area of investigation may disclose ramifications and connections that alter perspectives on other subjects. Such study also sharpens judgment and acquaints a person with processes by which new truths can be found.

In order to gain exposure to this kind of experience, students must elect and complete a major—a subject in which they will work more intensively than in any other. Yale College offers more than eighty possible majors. The department or program concerned sets the requirements for each major, which are detailed under Subjects of Instruction.

Some students will have made a tentative choice of a major before entering college. Others will have settled on a general area—for example, the humanities, the social sciences, the natural sciences—without being certain of the specific department or program of their major. Still others will be completely undecided. Many students who arrive with their minds made up change them after a year or two. Even students who feel certain of their choices should keep open the possibility of a change. In selecting courses during their first two years, students should bear in mind not only the distributional requirements, but also the need for some exploration of the subjects to which they feel drawn.

THE MAJOR (B.A. OR B.S.)

A major program usually includes at least twelve term courses in the same area, progressing from introductory to advanced work, which become the focus of a student's program in the junior and senior years. Majors are offered by departments, interdepartmental programs, or interdisciplinary programs. In many departments and programs, a limited number of courses in related fields may be offered in fulfillment of the requirements for the major. Many majors have prerequisites, usually taken in the first year or sophomore year.

In all majors, the student must satisfy a senior requirement, usually a senior essay, senior project, or senior departmental examination. In an intensive major, the student must fulfill additional requirements, such as taking a prescribed seminar, tutorial, or graduate course, or completing some other project in the senior year.

SPECIAL DIVISIONAL MAJORS

A Special Divisional Major affords an alternative for the student whose academic interests cannot be met within one of the existing major programs. Such students may, with the approval of the Committee on Honors and Academic Standing, design special majors of their own in consultation with members of the faculty and in accordance with the procedures outlined under Subjects of Instruction. A Special Divisional Major may not be offered as one of two majors.

Multidisciplinary Academic Programs

Multidisciplinary Academic Programs provide opportunities for Yale College students to examine pressing social challenges from a variety of disciplinary perspectives among a community of students and faculty who have shared interests. Students from any major can participate in these programs, and faculty from across the University contribute to them. Each program focuses centrally on a distinct and different set of issues, but they all share common features, including a set of commonly taken courses and opportunities for practical experience that allow students to combine theory and practice, applying what they have learned in the classroom and in their research. Each of these programs offers an interdisciplinary certificate for students who complete stated requirements.

EDUCATION STUDIES

The Education Studies Program in Yale College provides a structure for students interested in the research, policy, and practice of education. By virtue of studying education at Yale, students engage in the interdisciplinary study of a primary institution impacting citizenship, governance, social reproduction, child development, and social inequality. Students seeking to engage with Education Studies can pursue one of two certificates alongside their major: the Scholars Intensive Certificate, with a focus on learning with a cohort of Yale students and completing a senior year research or creative capstone project, or the uncapped Education Studies Certificate, which offers an individualized pathway to develop expertise through Education Studies coursework. For more information, see the program website.

GLOBAL HEALTH STUDIES

The Global Health Studies Program prepares students to critically engage with global health and its multifaceted concerns in contemporary societies. Global health is an interdisciplinary field, and as such, students develop a sophisticated understanding of the roles of politics, history, and economics, engage with the insights of anthropology, ethics, law, and sociology, and relate this knowledge to public health and the biomedical sciences. Students who seek to earn a Global Health Studies certificate need to apply to the program in sophomore year and will be expected to complete interdisciplinary coursework to gain a broad understanding of global health research, practice, and leadership. For more information, see the program website.

HUMAN RIGHTS STUDIES

The Human Rights Studies program presents human rights as a rich and interdisciplinary field of study. The program aims to provide students with the analytical, conceptual, and practical skills necessary for human rights study; connect students to affiliate faculty and peers; support student research projects and internships; and offer guidance for post-graduate careers and studies related to human rights. Students who seek to earn a Human Rights Studies certificate need to apply to the program in sophomore year and will be expected to complete interdisciplinary coursework to gain a broad understanding of contemporary issues such as gender disparities, racial discrimination, climate change, global health, human trafficking, refugees, world poverty, and humanitarian intervention. For more information, see the program website.

Certificate Programs

Central to the mission of Yale College is ensuring a broad education rooted in the liberal arts and sciences. That education should provide both breadth and depth across a wide array of disciplines, and it should be responsive to the shifting landscape of those disciplines and their interrelationships. To encourage students to engage within and across departmental and disciplinary boundaries, Yale College offers both disciplines-based and skills-based certificates. A certificate is not a smaller version of a major; instead, it offers opportunities for students to deepen a skill or to bring disparate elements into focus. There are three types of certificates offered in Yale College: Advanced Language Certificates, Skills-Based Certificates, and Interdisciplinary Certificates. See Certificates in Yale College. Only students enrolled in a bachelor's degree program are eligible to earn a certificate.

Declaration of Candidacy

Students should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the form, and approval from the Certificate Director, is necessary to ensure that the earned Certificate appears on student transcripts.

International Experience

Experience abroad is an invaluable complement to the on-campus experience. Such experience may include course work at foreign universities, intensive language study, directed research, independent projects, internships, laboratory work, and volunteer service. To augment students' education in a globalizing world, Yale College provides a variety of international opportunities during term time, summers, and post-graduation, as well as a large and growing number of fellowships to financially support students abroad. Students can visit the Center for International and Professional Experience to explore options for study abroad, search for international internships and careers, and seek funding for study, research, and work experiences off campus.

SUMMER ABROAD

Summer courses abroad are offered through Yale Summer Session Programs Abroad and Yale in London. Students may also apply through Yale Study Abroad to earn credit from eligible outside summer study abroad programs. Students receiving financial aid are eligible for summer funding (one summer) through the International Study Award (ISA) program.

YEAR OR TERM ABROAD

In recognition of the special value of formal study abroad, Yale College allows juniors and second-term sophomores to earn a full year or term of credit toward the bachelor's degree through the Year or Term Abroad program. Participation in the program provides students the opportunity to approach academic study through a different cultural perspective. Students apply to Yale Study Abroad for approval of a program of study abroad. The pertinent application procedures and regulations are listed in the

Academic Regulations, section K, Special Academic Programs. Additional information is available from the Yale Study Abroad office.

YALE IN LONDON

The Yale in London program offers spring-term courses in British humanities and social sciences, including history, history of art, architecture, sociology, literature, and drama at the Paul Mellon Centre for Studies in British Art, located in central London. The program is open to all undergraduates, including seniors, carries full Yale course credit, and counts as a term of enrollment. Instruction is designed to take advantage of the cultural resources of London and its environs, with regular field trips (including overnight stays) to museums, historic houses, and other sites of interest. Accommodations are provided for students in shared apartments. Further information is available on the program website, or from the Yale in London office at the Yale Center for British Art, or by email to yaleinlondon@yale.edu.

YALE IN LONDON SUMMER PROGRAM

Yale in London offers two overlapping summer sessions at the Paul Mellon Centre for Studies in British Art in central London, each lasting six weeks. There are two courses in each session, which vary from year to year and cover topics in humanities and social sciences, including history, history of art, architecture, sociology, literature, and drama. The courses are open to all undergraduates, including seniors, and carry full Yale course credit, although enrollment in a Yale in London summer session does not count as a term of enrollment in Yale College. As with the spring program, the summer sessions take advantage of the cultural resources of London and its environs, and include overnight field trips. Accommodations are provided. Course descriptions and further information are available on the program website, or from the Yale in London office at the Yale Center for British Art, or by email to yaleinlondon@yale.edu.

THE MACMILLAN CENTER

The Whitney and Betty MacMillan Center for International and Area Studies at Yale is the University's focal point for promoting teaching and research on all aspects of international affairs, societies, and cultures around the world. It brings together scholars from relevant schools and departments to provide comparative and problem-oriented teaching and research on regional, international, and global issues. The MacMillan Center oversees six undergraduate majors: African Studies, East Asian Studies, Latin American Studies, Modern Middle East Studies, Russian and East European Studies, and South Asian Studies. Language training is integral to each of the majors. Further information about the MacMillan Center is available on the Yale MacMillan Center website.

Experiential Learning

Yale College recognizes that experiential learning is a valued and integral part of the Yale College academic experience, enabling students to make the transition from the classroom into their postgraduate professional careers. This experience can be acquired through a variety of means, including but not limited to summer internships, volunteer opportunities, independent projects, and research opportunities. Yale College has a number of resources available to help students identify the experiential opportunity that best complements and enhances their academic goals. The Office of Career

Strategy and the Office of Fellowships are two helpful portals, available to all Yale College students. Students receiving financial aid may also be eligible for summer funding through the Summer Experience Award and the International Study Award (ISA).

Yale Summer Session

Yale Summer Session offers courses in the arts, engineering, humanities, mathematics, biological and physical sciences, and the social sciences. While many Summer Session courses are offered on campus in New Haven, an increasing number are offered online, and several others are offered as part of programs abroad. Courses in Summer Session are equivalent in credit and satisfy the same distributional requirements as their academic year counterparts, but are offered in a more concentrated and intensive form. Yale College students receive credit in Yale College for work successfully completed in Yale Summer Session. There are no auditing privileges in Yale Summer Session. Further information is available from the Yale Summer Session office or on the Summer Session website.

Advising and Academic Resources

ADVISING

What students ultimately take away from their four years at Yale largely depends on the careful planning they apply to their programs of study. Entering students should not map out a fixed schedule of courses for the subsequent four years, but they should think ahead and make plans for the terms to come. There will be time and opportunity for students to revise such plans as their academic ideas develop.

Students have four years at Yale to explore a range of academic subjects and interests. They should think about those areas that interest them most. They should also take the time to learn about other fields that will broaden their horizons.

During the first year, students should consider the following suggestions:

- Take an introductory course or two in areas of special interest that might lead to the pursuit of a certificate or a different major.
- Fulfill one or more distributional requirements by taking a course in another broad area of the university (humanities, social sciences, sciences).
- Develop skills in writing and/or quantitative reasoning.
- Consider learning a new language.
- Consider taking a course in a field that is both intriguing and never before studied.

As students shape their educational goals, they should seek informed advice. For incoming students who have not yet developed relationships with academic advisers on campus, Yale College offers summer advising sessions and a constellation of advising linked to the residential colleges. As students progress in their studies, usually by sophomore year, they select as their adviser a member of the faculty in an intended or potential major to guide their course selection.

In addition to these advisers, students often seek advice about academic matters, internship and research opportunities, student life, study abroad, and post-graduation

options from other offices on campus. Staff at the University Libraries, the Yale College Dean's Office, and the cultural centers are ready to support students in a variety of endeavors, as is the staff at the Center for International and Professional Experience (CIPE), whose divisions—Study Abroad, Fellowship Programs, the Office of Career Strategy (including the Health Professions Advisory Program), and Yale Summer Session—provide focused advising.

Residential Colleges

There are fourteen residential colleges: Berkeley, Branford, Davenport, Timothy Dwight, Jonathan Edwards, Benjamin Franklin, Grace Hopper, Morse, Pauli Murray, Pierson, Saybrook, Silliman, Ezra Stiles, and Trumbull. Leading each one is a resident head of college, and in each college a resident dean advises students on both academic and nonacademic matters. Associated with the head and the dean as fellows of the college are other members of the University drawn from different departments and schools, many of whom serve as advisers to first-year students and sophomores in the college. In addition, a group of seniors in each residential college, known as first-year counselors, serve as peer advisers to first-year students. Additional information about advising resources in the residential colleges can be found on each college website and the Advising Resources website.

Academic Departments

In each academic department and for every undergraduate major, a director of undergraduate studies (DUS) oversees the curriculum, placement matters, and advising resources for the major. In small majors, the DUS also typically serves as the primary adviser for all students in the major; in large majors, other members of the faculty often assist the DUS in providing advice to students. Much information about course placement and prerequisites, as well as requirements for each major, can be found in Chapter III. Additional information about advising resources and faculty in a department or program can be found on the relevant department website.

ACADEMIC RESOURCES

Yale Poorvu Center for Teaching and Learning

The Yale Poorvu Center for Teaching and Learning (the Poorvu Center) provides an array of teaching, tutoring, writing, and technology-enabled learning programs distributed across the University. The center supports student learning and provides opportunities for students to develop as teachers, mentors, and leaders. Additionally, the center houses the Academic Strategies program, which provides information, workshops, and individual mentoring to Yale College students on the skills central to active, empowered learning. Located in Sterling Memorial Library, the Poorvu Center includes community study space and a media studio. More information is available on the Poorvu Center website.

ACADEMIC STRATEGIES PROGRAM

The Academic Strategies Program provides information, workshops, and individual mentoring to all undergraduate students to help them thrive as students at Yale. Strategies discussed include time management, cultivating faculty mentorship, managing a heavy reading load, exam study strategies, and more. Peer academic

mentors are also available to help individual students develop and adapt strong approaches for their unique contexts. Students can request to be matched with a mentor by emailing academicstrategies@yale.edu. Faculty and staff also can directly refer students to Karin Gosselink (karin.gosselink@yale.edu) (Director) or Lynda Paul (lynda.paul@yale.edu) (Assistant Director).

In partnership with the First-Generation/Low-Income (FGLI) Community Initiative, Academic Strategies' FGLI Peer Mentorship groups offer peer support for first-year and sophomore FGLI students. Biweekly sessions expose students to key academic, extracurricular, and pre-professional resources. Students sign up in early September; for more information, contact Karin Gosselink (karin.gosselink@yale.edu).

STEM Navigators is a light touch mentoring program that helps inform students about success strategies and opportunities in STEM. Each week participants receive an email from their STEM Navigator mentor that highlights STEM-related activities and advice. Students can also request to meet one-on-one with their assigned mentor. For more information, contact Audrey Yeung (audrey.yeung@yale.edu), Academic Strategies Woodbridge Fellow.

Academic Strategies also offers academic and other support programming for students with disabilities, including physical disabilities, learning differences, temporary disabilities, chronic illness, mental illness, and sensory disabilities. Students can meet with our staff Learning Specialist to discuss how to adjust their existing learning strategies to the demands of pursuing college-level work with a disability. We also offer support groups for students with ADHD and dyslexia, and one-on-one peer mentoring through the Disability Peer Mentor Program. A formal diagnosis is not required for accessing these resources. For more information, or to refer a student to our disabilities support, please contact us at academicstrategies@yale.edu.

WRITING TUTORS AND WRITING PARTNERS

The Poorvu Center provides several ways for students to get help with writing. Each residential college has its own dedicated writing tutor. Tutors meet with students to discuss rough drafts of work in progress, research techniques, revision strategies, or other matters relevant to effective writing. Tutors offer free one-on-one help with any writing project: senior essays, course papers, applications, or anything intended for publication. The Writing Partners, another resource, are undergraduate and graduate students who offer a student's-eye view of writing and revision. Operating out of the Poorvu Center in Sterling Library, Writing Partners offer in-person, drop-in writing support daily. Students can also meet with Writing Partners online on select evenings. Finally, the Poorvu Center website offers writing handouts, model papers, a list of student publications, a guide to writing with Turnitin, and information on using sources effectively.

STEM TUTORING & PROGRAMS

The Poorvu Center provides quantitative reasoning (QR) and science tutoring (Sc) for most relevant fields in Yale College. Several courses provide their own Course-Based Peer Tutors (CBPTs) and Undergraduate Learning Assistants (ULAs) who can help students as they work on problem sets or study for exams, who can review returned assignments, and who are there to provide more support for students with difficulties. Information about CBPTs and ULAs is available on individual course syllabi and the

Canvas website. If a particular course does not have a CBPT/ULA, or if a student requires more help, the Residential College Math/Science Tutors offer drop-in hours that cover most science and QR topics. Finally, students who need more individual attention, in courses without CBPTs or ULAs, can apply for small-group tutoring. More information on all of these programs can be found on the Poorvu Center website.

Center for Language Study

The Center for Language Study (CLS), provides resources for language study at Yale. The CLS also provides support for speakers of other languages through its English Language Program. For undergraduates enrolled in a language course, the CLS offers peer tutoring in the target language. Students who seek to demonstrate advanced- or native-level proficiency in a language not taught at Yale may contact the CLS for a proficiency assessment. For students in Yale College and in the graduate and professional schools, the CLS offers specialized language programs such as Directed Independent Language Study (DILS) for the study of languages not taught at Yale, and the Fields program for discipline-specific language study at advanced levels. For professional school students, the CLS offers courses in language for special purposes, such as Spanish or Chinese for medical professionals. All language learners at Yale have access to CLS facilities, including its study rooms, distance facilities, and flexible learning spaces. For more information, including hours, a list of resources, and information about Yale's foreign language requirement and placement testing, see the Center website.

Student Accessibility Services

To ensure that all students have an equal opportunity to make the most of their Yale education, the Student Accessibility Services Office (SAS) facilitates individual accommodations for students with disabilities. SAS promotes equitable access to education and student life for students with disabilities, and fosters a campus environment of belonging, inclusion, and respect. Students requesting accommodations should complete an Accommodation Request form to initiate the interactive process. Engagement with SAS is private. Generally, a student requiring reasonable accommodations needs to renew accommodations with SAS at the start of each term and should complete this step as soon as their schedule is finalized. At any time during a term, students with a newly diagnosed disability or recently sustained injury requiring accommodations should contact SAS to discuss accommodation options. SAS can be reached at sas@yale.edu or by phone at (203) 432-2324.

Special Programs

DIRECTED STUDIES

Directed Studies (DS), a selective program for first-year students, is an interdisciplinary introduction to influential texts that have shaped many Western traditions, spanning from ancient cultures in Greece and the Near East to the present. Consisting of three integrated full-year courses in literature, philosophy, and historical and political thought, Directed Studies provides a coherent program of study that encourages students to put rich and complex texts into conversation with one another across time and disciplinary boundaries. From day one to the end of their first year, students in Directed Studies engage in critical thinking through learning to analyze challenging

and urgent texts, participate meaningfully in seminar discussions, and write clear and persuasive analytic essays. Directed Studies has no prerequisites and provides a strong foundation for any major. Approximately ten percent of the first-year class is admitted each year to the program, which also satisfies Yale College distribution requirements in Humanities and Arts (HU), Social Sciences (SO), and Writing (WR). Students entering the program must enroll in all three courses and are expected to enroll for both semesters. Students participating in DS become members of a close-knit and supportive intellectual cohort that endures well beyond the end of the first year. Additional information is available on the program website.

THE DEVANE LECTURES

The DeVane Lectures are a special series of lectures that are open to the general public as well as to students and to other members of the Yale community. They were established in 1969 in honor of William Clyde DeVane, Dean of Yale College from 1939 to 1963. Details of the course are listed under DeVane Lecture Course in Subjects of Instruction. Supplementary meetings will be held for those students taking the lectures for credit.

FIRST-YEAR SEMINAR PROGRAM

The First-Year Seminar program offers a diverse array of courses open only to first-year students and designed with first-year students in mind. Enrollment in seminars is limited to fifteen or eighteen students, depending on the nature of the course. Most seminars meet twice each week and do not, unless otherwise noted, presume any prior experience in the field. Roughly eighty first-year seminars across a wide range of subjects are offered every year, in both fall and spring terms. Students must apply for these seminars before the beginning of each term. A description of the program and application procedures can be viewed on the program website.

FRANCIS WRITER-IN-RESIDENCE

The Francis Writer-in-Residence in Yale College is a distinguished writer of nonfiction who teaches either one or two courses each academic year. He or she is actively engaged with undergraduate life and serves as an academic mentor through seminars, readings, meetings with students, and other activities. The Francis Writer-in-Residence for 2023–2024 is Anne Fadiman.

ISEMAN SEMINAR IN POETRY

The Frederick Iseman Professor of Poetry is a distinguished poet or a scholar who teaches poetry or dramatic poetry of any era. The Iseman Professor teaches the Iseman Seminar in Poetry and is actively engaged with undergraduate life, serving as an academic and literary mentor through readings, meetings, and other extracurricular activities. The Iseman Professor for 2023–2024 is Louise Glück.

RESERVE OFFICERS TRAINING CORPS (ROTC)

Yale hosts Naval and Air Force ROTC programs, which offer qualified Yale College students an opportunity to pursue their regular Yale degrees while also preparing for leadership positions in the United States Air Force, Space Force, Navy, or Marine Corps. Regardless of financial need, participating students may receive significant help in meeting the costs of a Yale education through national scholarships offered by each branch of ROTC. While most ROTC students in Yale College earned a

scholarship while in high school, any student may enroll in ROTC courses and apply to join ROTC during their first year or sophomore year. Further information about the Air Force ROTC program can be found on the Yale AFROTC website or under Aerospace Studies in Subjects of Instruction. Further information about the Naval ROTC program (including the Marine Corps program) can be found on the Yale NROTC website or under Naval Science in Subjects of Instruction. Yale College students can participate in Army ROTC through a crosstown arrangement at the University of New Haven. Students not matriculated at Yale who are participating in the Air Force ROTC program as part of a crosstown arrangement are subject to Yale College's *Undergraduate Regulations*.

RESIDENTIAL COLLEGE SEMINARS

The Residential College Seminar program, instituted in 1968, is devoted to the development of innovative courses that fall outside traditional departmental structures. The instructors for the seminar program are drawn from the University community and from the region, including writers, journalists, artists, legal scholars, public health experts, and participants in government and the public sector. The Residential College Seminar program encourages innovative courses, and student committees in the residential colleges play a significant role in selecting seminars, but all courses in the program must satisfy standard requirements for academic credit in Yale College and must be approved by the relevant faculty committees that oversee the curriculum. Each residential college sponsors at least one seminar each term. Additional seminars are occasionally sponsored directly by the program and are equally open to students from all residential colleges. Descriptions of the seminars are found on the program website.

ROSENKRANZ WRITER-IN-RESIDENCE

The Rosenkranz Writer-in-Residence in Yale College is a distinguished professional writer, chosen from fiction writers, playwrights, critics, journalists, screenwriters, essayists, poets, and social commentators. Both as a fellow of a residential college and as an instructor of one or two courses in each academic year, the Rosenkranz Writer-in-Residence meets formally and informally with students through classes and through readings and extracurricular activities. The Rosenkranz Writer-in-Residence for 2023–2024 is Natalie Diaz.

STUDIES IN GRAND STRATEGY

Studies in Grand Strategy is a two-semester, calendar-year interdisciplinary seminar. The class investigates methods and materials for teaching and understanding grand strategy as a historical concept and as an active approach to geopolitics, statecraft, and social change. Each course, worth one credit, emphasizes connections between history and strategy, scholarship and real-world practice, leadership, and citizenship. The two-term seminar aims to educate students intending to pursue careers in a wide variety of fields and is part of the Brady-Johnson Program in Grand Strategy. Additional information can be found on the program website.

YALE JOURNALISM INITIATIVE

The Yale Journalism Initiative brings a distinguished writer to campus each semester to teach an advanced journalism seminar, ENGL 467. The seminar is open to undergraduates and select graduate and professional students; application is required

through the English department’s selection process for creative writing classes. Students who complete the seminar may apply to become a Yale Journalism Scholar, a distinction that provides access to summer support for internships, career counseling with a journalism specialist, and invitations to meet professional journalists at events both on and off campus. For more information on the initiative or on becoming a Journalism Scholar, see the Journalism Initiative website.

Honors

GENERAL HONORS

The bachelor’s degree *cum laude*, *magna cum laude*, or *summa cum laude* is awarded at graduation on the basis of a student’s general performance in courses taken at Yale. At Commencement, General Honors are awarded to no more than 30 percent of the class. The bachelor’s degree is awarded *summa cum laude* to no more than the top 5 percent of the graduating class, *magna cum laude* to no more than the next 10 percent of the graduating class, *cum laude* to no more than the next 15 percent of the graduating class. Eligibility for General Honors is based on the grade point average (GPA) earned in courses taken only at Yale, with letter grades carrying the following values:

A	4.00	B–	2.67	D+	1.33
A–	3.67	C+	2.33	D	1.00
B+	3.33	C	2.00	D–	0.67
B	3.00	C–	1.67	F	0.00

Marks of CR in courses taken on a Credit/D/Fail basis are not included in the calculation of grade point averages. Marks of W, for Withdrawal, carry no course credit, and do not figure in a grade point average.

DISTINCTION IN THE MAJOR

Distinction in the Major is conferred at graduation on any senior who, on nomination by the student’s department or program, and with the concurrence of the Committee on Honors and Academic Standing, merits such an award for the quality of work completed in the major subject.

Distinction is awarded to students who have earned grades of A or A– in three-quarters of the credits in the major subject or program and who have earned a grade of A or A– on the senior departmental examination, senior essay, or senior project. All courses taken for the major are included in these calculations for Distinction in the Major. Grades of F and marks of CR in courses taken Credit/D/Fail are included as non-A grades. Marks of W, for Withdrawal, which carry no course credit, and marks of P, for Pass, do not figure in the calculation for Distinction.

PHI BETA KAPPA

Election to Phi Beta Kappa is based on the percentage of grades of A earned at Yale. Marks of CR in courses taken Credit/D/Fail are counted as non-A grades. Marks of P in courses that are graded only on a Pass/Fail basis, such as independent study courses, are not included in the calculations. Marks of W, for Withdrawal, carry no course credit, and do not figure in the calculation for Phi Beta Kappa. Grades earned outside Yale, including those earned during study abroad other than at Yale in London, are also

not included in the calculation. Further information about the criteria for election and about the Yale chapter can be found on the Yale Phi Beta Kappa website.

PRIZES

For a list of the numerous prizes open annually to students in Yale College, consult the Yale Prizes website.

INTERRUPTION OR TEMPORARY SUSPENSION OF UNIVERSITY SERVICES OR PROGRAMS

Certain events that are beyond the University's control may cause or require the interruption or temporary suspension of some or all services and programs customarily furnished by the University. These events include, but are not limited to, epidemics or other public health emergencies; storms, floods, earthquakes, or other natural disasters; war, terrorism, rioting, or other acts of violence; loss of power, water, or other utility services; and strikes, work stoppages, or job actions. In the face of such events, the University may, at its sole discretion, provide substitute services and programs, suspend services and programs and/or issue appropriate refunds. Such decisions shall be made at the sole discretion of the University.

II. ACADEMIC REGULATIONS

Academic Regulations

As a condition of enrollment in Yale College, every student is required to comply with the academic regulations. Students are expected to familiarize themselves with these regulations, and an assertion of ignorance of their provisions cannot be accepted as a basis for an exception to them. No student or group of students should expect to be warned individually to conform to any of the regulations contained in this publication. Students are advised to pay special attention to all deadlines given in the academic regulations. Students who have questions or concerns about these regulations should consult with their residential college dean.

A. Requirements for the B.A. or B.S. Degree

To qualify for the bachelor's degree, B.A. or B.S., a student must successfully complete thirty-six term courses in Yale College or their equivalent. In doing so, the student must fulfill the distributional requirements of Yale College and the requirements of a major program. A student may normally complete no more than eight terms of enrollment in order to fulfill these requirements.

Yale College expects regular classroom attendance of all students. Accordingly, during terms in which undergraduates are enrolled and instruction is provided in-person, they may not be away from campus for a period exceeding two continuous weeks (14 calendar days) of class time without receiving advance permission from the Committee on Honors and Academic Standing. Students considering such a period of absence should contact their residential college dean at the earliest opportunity.

During the terms that students are enrolled and in residence in Yale College, they cannot be simultaneously enrolled, either full-time or part-time, in any other school or college at any other institution, with the exception of other Yale University schools that permit currently enrolled undergraduates to be admitted to programs that have been established within Yale College. Examples of such programs include the simultaneous award of the bachelor's and master's degree and the five-year B.A.-B.S./M.P.H. degree program in Public Health. Exceptions will also be made for Yale College students whose participation in the Reserve Officers Training Corps program requires enrollment in courses offered outside of Yale.

Students enrolled in the Eli Whitney Students program should consult section N, Eli Whitney Students Program.

Students who have already earned a bachelor's degree at Yale or at another institution are not eligible for degree enrollment in Yale College.

DISTRIBUTIONAL REQUIREMENTS

All students in Yale College must fulfill distributional requirements in order to qualify for the bachelor's degree. For a general introduction to the distributional requirements and a definition of the disciplinary areas and skills categories, refer to The Undergraduate Curriculum.

1. **Distributional requirements for the first, sophomore, and junior years** Students must partially fulfill the distributional requirements during the first, sophomore, and junior years in order to be eligible for promotion.

Distributional requirements for the first year Students must have enrolled for at least one course credit in two skills categories by the end of the second term of enrollment in order to be eligible for promotion to sophomore standing.

They may elect no more than four course credits in a single department, and no more than six course credits in a single disciplinary area, except that a student taking a laboratory course may elect as many as seven course credits in the sciences.

Note that credit from outside Yale may not be applied toward the distributional requirements for the first year; accordingly, students who are permitted by the Committee on Honors and Academic Standing to repair a deficiency in these requirements over the summer following their first year must do so by means of enrollment in Yale Summer Session.

Distributional requirements for the sophomore year Students must have enrolled for at least one course credit in each of the three disciplinary areas and for at least one course credit in each of the three skills categories by the end of the fourth term of enrollment in order to be eligible for promotion to junior standing.

Distributional requirements for the junior year Students must have completed all of their skills requirements, and must have earned at least one course credit in each of the three disciplinary areas, by the end of the sixth term of enrollment in order to be eligible for promotion to senior standing.

2. **Multiple distributional designations** Although some courses may carry more than one distributional designation, a single course may be applied to only one distributional requirement. For example, if a course is designated both Hu and So it may be applied toward either the humanities and arts requirement or the social science requirement, but not both. Similarly, if a course is designated QR and Sc, it may be applied toward either the quantitative reasoning requirement or the science requirement, but not both.

A course with multiple distributional designations, once applied toward one distributional requirement, may subsequently be applied toward a different distributional requirement. During the summer after each academic year, the University Registrar's Office optimizes the use of each student's completed courses toward fulfillment of the distributional requirements.

3. **Language distributional requirement** All students are required to engage in the study of a language while enrolled in Yale College. The most common paths to fulfillment of the language distributional requirement are illustrated in the chart at the end of this section.

Students who matriculate at Yale with no previous language training must complete three terms of instruction in a single language. This requirement is fulfilled by the completion of courses designated L1, L2, and L3.

Students who have taken the Advanced Placement examination in French, German, Italian, Latin, or Spanish, and who present scores of 5, are recognized as having completed the intermediate level of study. Scores of 6 or 7 on the International Baccalaureate Advanced-Level examination are also accepted as evidence of

intermediate-level accomplishment. Students at this level fulfill the language distributional requirement by completing one course designated L5. Alternatively, they may successfully complete one or more courses in a different language at least through the level designated L2.

Students who have studied a language before matriculating at Yale but who have not achieved a score of 5 on the Advanced Placement test in French, German, Italian, Latin, or Spanish must take a placement test offered by the appropriate language department or, for languages in which no departmental placement test is offered, consult the appropriate director of undergraduate studies (DUS). Dates and times of placement tests are given in the *Calendar for the Opening Days of College* and on the Center for Language Study website. The departmental test determines whether students place into the first, second, third, or fourth term of language study (courses designated L1, L2, L3, or L4), or whether they qualify for language courses beyond the fourth term of study (L5).

Students who place into the first term of a language must successfully complete three courses in that language, designated L1, L2, and L3.

Students who matriculate at Yale able to place into the second term of a language must successfully complete three courses in that language, designated L2, L3, and L4. Alternatively, they may successfully complete three courses in a different language at least through the level designated L3.

Students who matriculate at Yale able to place into the third term of a language must successfully complete two courses in that language, designated L3 and L4. Alternatively, they may successfully complete two or more courses in a different language at least through the level designated L3.

Students who matriculate at Yale able to place into the fourth term of a language must successfully complete one course in that language, designated L4. Alternatively, they may successfully complete one or more courses in a different language at least through the level designated L3.

Students who matriculate at Yale able to place into the fifth term of a language must successfully complete one course in that language, designated L5 or a comparable course at the DUS's discretion. Alternatively, they may successfully complete one or more courses in a different language at least through the level designated L2.

Students whose secondary school transcript shows that the language of instruction was other than English, or who otherwise can demonstrate native proficiency in a language other than English through an assessment at the Center for Language Study, may fulfill the language requirement by successfully completing ENGL 114, 115, 120, ENGL 121, or 450. Alternatively, students in this category may fulfill the requirement by successfully completing one course in their native language designated L5 or a comparable course at the DUS's discretion, or by successfully completing one or more courses in a third language, neither English nor the language of their secondary school instruction, at least through the level designated L2.

In order to promote firsthand experience in other cultures and the learning of language in real-world settings, students are permitted to apply toward the satisfaction of the language requirement the completion of an approved study

abroad program in a non-English language speaking setting if they have first completed or placed out of a language course designated L2. Students seeking to undertake study at another institution or program for this purpose must consult the relevant director of undergraduate studies in advance of their proposed study for advice about appropriate programs and courses, and for information about the approval process. See section Q, Credit from Other Universities. Study abroad may be used in place of L1 and L2 courses only if it is part of a Yale College program, such as Yale Summer Session. Study abroad opportunities are described under International Experience in The Undergraduate Curriculum.

Intensive language courses provide the equivalent of a full year of instruction in a single term. A course designated L1–L2 fulfills both the L1 and the L2 levels of the language distributional requirement. Similarly, a course designated L3–L4 satisfies both the L3 and the L4 levels.

Not all of the languages offered in Yale College are offered at all levels, and it may not be possible to fulfill the language requirement in some of them. Languages currently offered in Yale College are Akkadian, American Sign Language, Arabic, Armenian, Bosnian-Croatian-Serbian, Burmese, Chinese, Czech, Dutch, hieroglyphic Egyptian, Finnish, French, German, ancient Greek, modern Greek, biblical Hebrew, modern Hebrew, Hindi, Hungarian, Indonesian, isiZulu, Italian, Japanese, Khmer, Kiswahili, Korean, Latin, Persian, Polish, Portuguese, Punjabi, Romanian, Russian, Sanskrit, Sinhala, Spanish, Tamil, classical Tibetan, modern Tibetan, Turkish, Twi, Ukrainian, Vietnamese, Wolof, Yiddish, and Yorùbá. Students wishing to fulfill the language requirement in a less commonly taught language should consult the DUS in the relevant department to verify that the appropriate level of study will be offered. Students who have intermediate- or higher-level proficiency in a language other than those listed here should consult the appropriate DUS or the director of the Center for Language Study to arrange for a placement examination.

Students who, for medical reasons, are not able to complete the language requirement may petition the Committee on Honors and Academic Standing for a partial waiver of the requirement. In granting such a waiver, the committee will normally require that a student complete four course credits in the study of a specific non-English-speaking culture.

4. **Courses taken on the Credit/D/Fail basis** A student may not apply any course credit earned on the Credit/D/Fail basis toward satisfaction of the distributional requirements for the junior year nor for the distributional requirements for the bachelor's degree.
5. **Independent study courses** A student may not apply any course credit earned through independent study courses toward satisfaction of any of the distributional requirements. Students considering enrollment in Yale graduate or professional schools should carefully review the relevant entry in Section L, Courses in the Yale Graduate and Professional Schools.
6. **Acceleration credits** Acceleration credits may not be employed to satisfy the distributional requirements for the bachelor's degree, nor may they be employed to meet the distributional requirements for the first, sophomore, or junior years.

7. **Course credit earned at Yale before matriculation** Course credit earned at Yale before a student's matriculation, either at Yale Summer Session or in the Non-degree Students program while the student was enrolled as a secondary school student in the New Haven area, may be applied to the distributional requirements for the bachelor's degree and to those for the sophomore and junior years, but it may not be applied to the distributional requirements for the first year.
8. **Courses in the graduate and professional schools** It is the expectation that Yale College students, including candidates for the simultaneous award of the bachelor's and master's degrees, will fulfill their distributional requirements in courses taken in Yale College. Credit earned in a course offered in the Graduate School of Arts and Sciences or in one of the professional schools of the University may be applied toward the distributional requirements only if the course instructor has secured, in advance of the term in which the course will be given, approval from Yale College. Instructors interested in making such an advance arrangement can contact the Dean of Academic Affairs to be directed to the appropriate authority for such approval.
9. **Course credit from outside Yale** Course credit earned at another university may be applied toward the distributional requirements for the bachelor's degree and to those for the sophomore and junior years whether or not it is counted toward the 36-course-credit requirement for graduation. Credit from outside Yale may not be applied toward the distributional requirements for the first year. See section Q, Credit from Other Universities. Note particularly that Yale does not award course credit or distributional credit for courses completed at another college or university before the student graduated from secondary school.
10. **Major programs** Courses taken in fulfillment of a student's major requirements may be applied toward satisfaction of the distributional requirements for the first, sophomore, and junior years and toward the distributional requirements for the bachelor's degree.
11. **Permission for a partial waiver of the distributional requirements for the first year** If, with the permission of the residential college dean, a first-year student enrolls in a program of study for the first two terms of enrollment worth more than nine course credits, the dean may waive the year limit on the number of course credits that a student may elect in a single department or disciplinary area. Under no circumstances may a student be promoted to sophomore standing without having enrolled for at least one course credit in each of two skills categories (language, quantitative reasoning, writing).
12. **Permission to postpone fulfillment of the distributional requirements for the sophomore year** A student may petition the Committee on Honors and Academic Standing for permission to fulfill the distributional requirements for the sophomore year in the fifth term of enrollment. Such a petition must be filed no later than the date of midterm of the fourth term of enrollment; it should explain the sound academic reasons why these requirements cannot be satisfied within four terms of enrollment and give an exact description of how they will be fulfilled in the fifth term. Students who have not fulfilled the distributional requirements for the sophomore year by the end of the fourth term of enrollment and who have not been granted permission by the Committee on Honors and Academic Standing to postpone their fulfillment will normally not be promoted to junior standing.

- 13. Permission to postpone fulfillment of the distributional requirements for the junior year** In exceptional circumstances, a student may petition the Committee on Honors and Academic Standing for permission to fulfill the distributional requirements for the junior year in the seventh term of enrollment. Such a petition, which must include the written support of the residential college dean and, where applicable, that of the DUS in the student's major, should be filed no later than the date on which the student's course schedule is due in the sixth term of enrollment; in no case will a petition be accepted later than the date of midterm in the sixth term of enrollment. It should explain the sound academic reasons why these requirements cannot be satisfied within six terms of enrollment and give an exact description of how they will be fulfilled in the seventh term. Students who have not fulfilled the distributional requirements for the junior year by the end of the sixth term of enrollment and who have not been granted permission by the Committee on Honors and Academic Standing to postpone their fulfillment will normally not be promoted to senior standing.

MAJOR REQUIREMENTS

The requirements of the various major programs are given under the heading for each department or program. Every major program includes a senior requirement, which may take the form of a senior essay, a senior project, or a senior departmental examination.

EIGHT TERMS OF ENROLLMENT

A student must complete the requirements for the bachelor's degree in no more than eight terms of enrollment. Terms spent on a Year or Term Abroad, or in the Yale College program at the Paul Mellon Centre in London during a spring term, are considered the equivalent of terms of enrollment in Yale College. Note, however, that course credits earned in terms spent on a Year or Term Abroad may not be applied to acceleration by the early accumulation of thirty-six course credits all earned at Yale. See section R, Acceleration Policies. (Attendance at the summer program at the Paul Mellon Centre in London or Yale Summer Session does not constitute a term of enrollment in Yale College.)

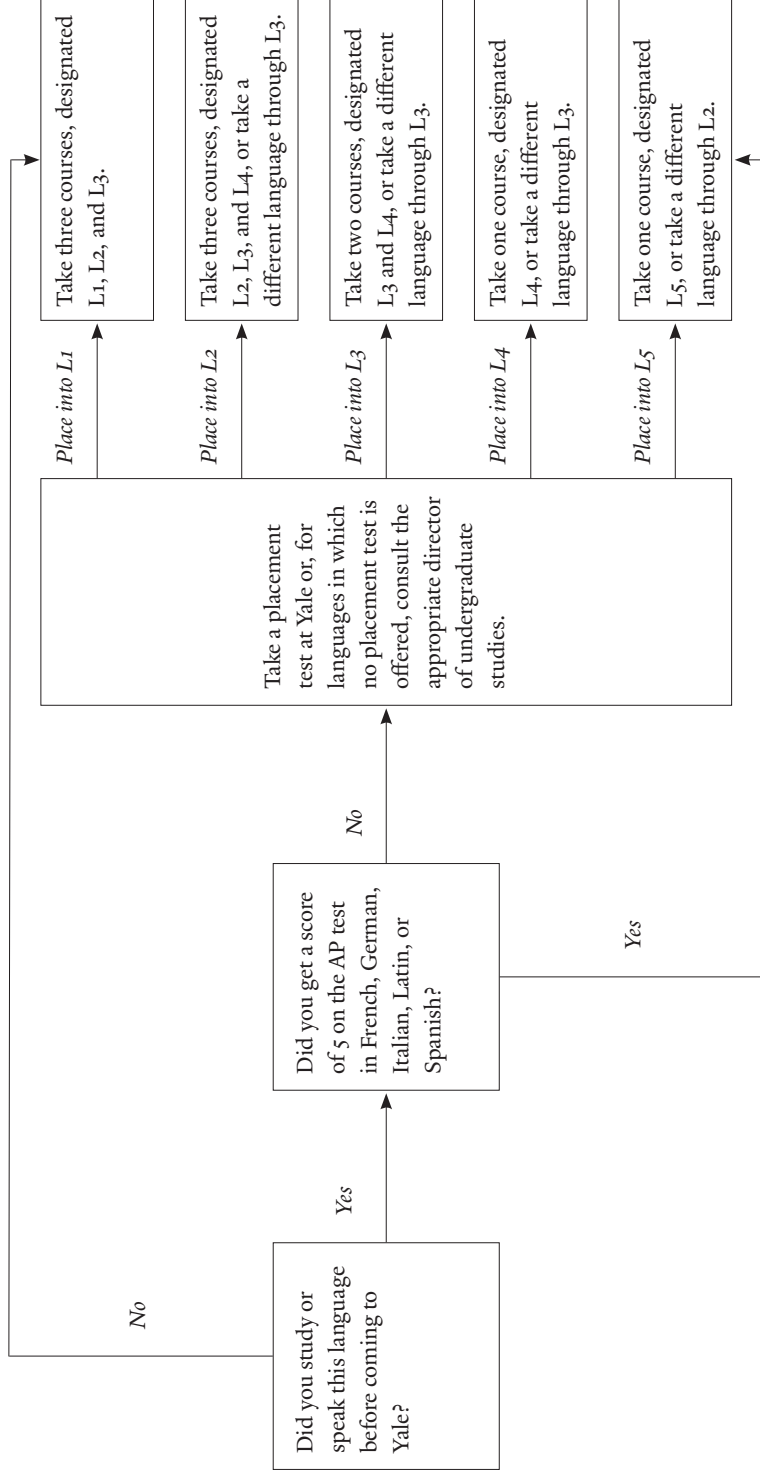
In exceptional circumstances, a student may petition the Yale College Committee on Honors and Academic Standing for permission to enroll for an additional term. Such a petition should be made no later than the beginning of a student's seventh term of enrollment; it should describe precisely, giving detailed information on specific courses, why it is impossible for the student to complete the requirements for a bachelor's degree within eight terms; and it should be accompanied by detailed, informative letters of endorsement from the student's DUS and residential college dean. When the request is being made in whole or in part on medical grounds, documentation must be provided by a treating physician or therapist, by Student Accessibility Services, or by both. The Committee on Honors and Academic Standing cannot grant permission for a ninth term in order for a student to undertake an optional arrangement not necessary for the acquisition of a bachelor's degree, such as, for example, the completion of two majors, or enrollment in the Program for the Simultaneous Award of the Bachelor's and Master's Degrees, or completion of the entrance requirements for graduate or professional school. Students who have been permitted to take a reduced course load

in order to pursue medical treatment may be granted a tenth term of enrollment. A student given permission to enroll for a ninth or tenth term is eligible for scholarship assistance from Yale as in the student's previous terms. See "Financial Services" under "Regulations" in the Yale College online publication Undergraduate Regulations.

(Policy updated January 2023.)

Graduation in fewer than eight terms of enrollment is possible: see section R, Acceleration Policies. Under no circumstances may a student graduate in fewer than six terms of enrollment, unless the student was admitted by transfer from another college or university. Transfer students should consult section M, Transfer Students. Eli Whitney students should consult section N, Eli Whitney Students Program.

MOST COMMON PATHS TOWARD FULFILLMENT OF THE LANGUAGE REQUIREMENT



B. Grades

LETTER GRADES

The letter grades in Yale College are:

A	Excellent	B+		C+		D+		F	Fail
A-		B	Good	C	Satisfactory	D	Passing		
		B-		C-		D-			

CREDIT/D/FAIL OPTION

The opportunity to elect courses on a Credit/D/Fail basis has been provided by the Yale College Faculty in order to encourage academic exploration and to promote diversity in students' programs.

1. **Reporting of grades** In all courses (except for a few professional school courses), instructors report letter grades for all students. If the student has chosen the Credit/D/Fail option in a course, the registrar converts grades of A, A-, B+, B, B-, C+, C, and C- into the notation CR, which is entered on the student's transcript. Grades of D+, D, D-, and F are entered on the transcript as reported. A student may not be required to disclose to the instructor of a course whether the student has enrolled in the course for a letter grade or under the Credit/D/Fail option.
2. **Eligibility** All courses, other than independent study courses, that are offered in Yale College during the fall and spring terms are available for election under the Credit/D/Fail option. (See "Independent Study Courses," below, for information on the grading of such courses.)
3. **Total number of course credits** A student has up to six opportunities to convert a course credit to the Credit/D/Fail option, with two of these opportunities expiring if unused during their first two terms of enrollment.
4. **Number of courses and course credits in a term** As many as two course credits may be elected under the Credit/D/Fail option in a term; thus in an academic year a student may earn as many as four course credits on the Credit/D/Fail option. In each term, a student must elect at least two courses, representing at least two course credits, for letter grades or the mark of Pass, in any combination.

For students enrolled in the Eli Whitney Students program, who are permitted to enroll in as few as three course credits in a calendar year and thus sometimes enroll in only one course credit in a term, different limits apply. An Eli Whitney student enrolled in four or more course credits in a term may elect up to two course credits that term under the Credit/D/Fail option; an Eli Whitney student enrolled in three or 3.5 course credits in a term may elect up to 1.5 course credits that term under the Credit/D/Fail option; and an Eli Whitney student enrolled in two or 2.5 course credits in a term may elect up to one course credit that term under the Credit/D/Fail option. An Eli Whitney student who is enrolled in fewer than two course credits in a term may elect no course credits that term under the Credit/D/Fail option. An Eli Whitney student who is enrolled in two or more but fewer than four course credits in a term may elect no more than one course credit that term under the Credit/D/Fail option. An Eli Whitney student who is enrolled in

four or more course credits in a term is bound by the limits given in the paragraph immediately above.

5. **Distributional requirements** A student may not apply any course credit earned on the Credit/D/Fail basis toward satisfaction of the distributional requirements for the junior year, or toward satisfaction of the distributional requirements for the bachelor's degree.
6. **Requirements of the major** The program description of each major specifies whether or not courses taken on the Credit/D/Fail basis count toward the requirements of that major.
7. **Credit/year course sequences** A credit/year course sequence may be taken under the Credit/D/Fail option for one term while the other term of the yearlong sequence is taken for a letter grade. For credit/year course sequences in which a student receives a separate letter grade for each of the two terms, each term will be governed by the enrollment option the student elected for that term. For credit/year course sequences in which a student receives the mark of SAT or NSAT for the first term and a letter grade for the second, the enrollment option that the student elects for the second term governs both terms of the course sequence; that is, students will receive either the mark of CR for both terms or a letter grade for both terms, depending on the option elected for the second term.
8. **Course schedules** Students enroll in all courses without selecting any for the Credit/D/Fail option. They may subsequently select that option in any Yale College course – other than those independent study courses graded on a Pass/Fail basis – by the last day of classes, as published in the Yale College Calendar with Pertinent Deadlines. After the last day of classes, election of the Credit/D/Fail option is not permitted. As indicated above, in a given term a student may elect as many as (but no more than) two course credits on the Credit/D/Fail basis; and must elect at least two courses, representing at least two course credits, for letter grades or the mark of Pass, in any combination.
9. **Conversion back to a letter grade** Once a student converts a course to the Credit/D/Fail mode, this change cannot be reversed.
10. **Acceleration credit** Work completed under the Credit/D/Fail option cannot yield acceleration credit.
11. **Prizes and honors** Marks of CR are included as non-A grades in the calculations for some prizes, for Distinction in the Major, and for election to Phi Beta Kappa, but marks of CR are not included in the calculation for General Honors. See Honors in The Undergraduate Curriculum.
12. **Courses in the graduate and professional schools** Courses in the Graduate School of Arts and Sciences and in the professional schools of the University are not available on the Yale College Credit/D/Fail option. Some courses in certain professional schools of the University are, however, graded on a Pass/Fail basis only, and grades for undergraduates in these courses are recorded as CR or F. Such credits are counted in the total earned on the Credit/D/Fail basis that a student is permitted to offer in a term as well as the total offered toward the requirements of a bachelor's degree. Marks of CR in professional school courses are included in the calculations for Distinction in the Major as non-A grades. Marks of CR in professional school courses are not included in the calculation for General

Honors. See “General Honors” and “Distinction in the Major” under Honors in The Undergraduate Curriculum.

INDEPENDENT STUDY COURSES

Independent study courses, other than senior essays or projects and other exempted courses as explained below, are graded on a Pass (“P”)/Fail (“F”) basis, with the additional requirement that the instructor of record submit a substantive report that both describes the nature of the independent study and evaluates the student’s performance in it. These reports will be shared with the student and the director of undergraduate studies (DUS) in the department or program in which the course is offered, and kept in the office of the student’s residential college dean.

Senior projects and courses deemed by a department or program to be a constituent of the senior requirement are evaluated with a letter grade. Additionally, the department or program offering a particular independent study course may deem that such a course should be exempted from Pass/Fail grading for a particular student because the course meets an important requirement in the major. In such a case, the DUS in the department or program that will be applying the course toward its major requirements may petition the Committee on Honors and Academic Standing to permit the student’s work in the course to be evaluated with a letter grade. Such a petition should be filed by the date on which the student’s schedule is due in the term in which the student is enrolling in the course, and should provide sound academic reasons for the exception. In no case will such a petition be accepted later than the date of midterm in the term in which the course is being taken.

GENERAL REGULATIONS CONCERNING GRADES AND TRANSCRIPTS

1. **Record of courses** A transcript is the record of courses in which a student has enrolled during the student’s progress in completing the requirements of the bachelor’s degree. All grades, passing and failing, thus appear on the transcript and are counted in the calculation of grade point average (GPA). These include passing grades earned in the first term of a credit/year course sequence in which the second term is not completed. If a student remains in a course after the date of midterm, the student is considered to have been enrolled in that course; therefore, if a student withdraws from the course after midterm and before the first day of the reading period, the mark of W (Withdraw) appears on the transcript in association with the course. See paragraph 4 below.
2. **Equal value of courses** Passing grades contribute equally, to the extent to which they carry course credit, toward the 36-course-credit requirement for graduation. A grade of D in a course, for example, does not need to be balanced with a higher grade in some other course.
3. **Change of a grade** A grade, once submitted by the instructor of a course to the registrar, may not be changed except by vote of the Yale College Committee on Honors and Academic Standing on petition of the instructor, unless it is the result of a clerical error made in the instructor’s computation or in transcription of a grade.
4. **Deadlines for withdrawal from courses** If a student has elected a full-term course on the course schedule but formally withdraws from it before midterm,

as published in the Yale College Calendar with Pertinent Deadlines, the student's transcript will contain no indication of that course after the withdrawal has been recorded by the registrar. If a student has elected a half-term course on the course schedule but formally withdraws from it by the relevant deadline published in the Yale College Calendar with Pertinent Deadlines, the student's transcript will contain no indication of that course after the withdrawal has been recorded by the registrar. See section F, Withdrawal from Courses.

If a student enrolled in a full-term course formally withdraws from it after midterm but before the first day of the reading period, the student's transcript will record the designation W (Withdraw) for the course. In credit/year course sequences in which a student receives the mark of SAT or NSAT for the first term and a letter grade for the second, a student who completes the first term but does not subsequently enroll in the second term, or who subsequently withdraws from the second term before the second term is completed, will have the designation W (Withdraw) recorded for the first term of the sequence.

If a student enrolled in a half-term course formally withdraws from it after the deadline for the course to be removed from the transcript, but by the last date a withdrawal is permitted from the course, the student's transcript will record the neutral designation W (Withdraw) for the course. See the Yale College Calendar with Pertinent Deadlines for both dates in each term.

The mark of W is a neutral designation indicating simply that the student has been enrolled in, but has withdrawn from, a course; while the course obviously carries no credit toward the degree, the W implies no evaluation of a student's work and carries no implication whatsoever of failure. Withdrawal from a course after the last day of classes, as published in the Yale College Calendar with Pertinent Deadlines, is not possible. See section F, Withdrawal from Courses.

5. **Incomplete work and postponed final examinations** A student who has received permission for a mark of Temporary Incomplete in a course, or who has been authorized to take a makeup final examination in a course, is allowed the specified period of time to repair the deficiency in the course. If the deficiency is not repaired by a satisfactory performance within the stipulated time, then the designation TI (Authorized Temporary Incomplete) or ABX (Authorized Absence from Final Examination) is automatically converted by the registrar to the grade of F. See section H, Completion of Course Work, "Postponement of Final Examinations" and "Work Incomplete at the End of Term."
6. **Withdrawal from Yale College** Whether a student withdraws from Yale College for personal, medical, academic, or financial reasons, the entry placed in each case on the student's transcript is the word "Withdraw" together with the date of the withdrawal. When a student is withdrawn for disciplinary reasons, the entry placed on the student's transcript is the word "Suspended" together with the date of the suspension.
7. **Majors, concentrations, and certificates** A transcript may show as a student's major subject only a designation approved for that purpose by the Yale College Faculty. Major designations are listed under Majors in Yale College. Additionally, transcripts show clearly defined concentrations or tracks of

majors. Certificates are also listed on transcripts after degrees have been conferred. Certificates are listed under Certificates in Yale College.

8. **Access to grades** Access to recorded grades is available online to students in any Yale College course for which they have completed or actively declined to complete the online course evaluation form through the Yale Student Information System (SIS). Students have the opportunity to grant online access to their grades to certain other parties through the Proxy Management menu in the Student Information System.

C. Course Credits and Course Loads

CREDIT VALUE OF COURSES

Most courses in Yale College are term courses that carry one course credit if completed with a passing grade. There are, however, some variations:

1. **Double-credit courses** Certain courses in Yale College, including intensive language or research courses, award two course credits for a single term's work.
2. **Yearlong course sequences** There are some yearlong course sequences in which two course credits are awarded upon the satisfactory completion of both terms of the sequence; other course sequences, including some research and laboratory courses, give one or four course credits for the successful completion of the full year's work. A student who fails the first term of a yearlong course sequence may continue the sequence only with the instructor's written permission, and will receive course credit only for the successful completion of the second term's work. A student who satisfactorily completes the first term of a yearlong course sequence may receive course credit routinely for that term's work, except where noted otherwise in the course listing.

The completion of the first term only of an introductory modern language earns credit whether or not a subsequent term of that language is completed. Neither instructors nor departments have the authority to make an exception to this rule.

3. **Laboratory courses** Some laboratory courses carry no separate credit toward the degree; others carry a full course credit for a term's work; and still others carry one-half course credit.
4. **Half-credit courses** All courses that carry 0.5 or 1.5 course credits and that are not bound by the credit/year restriction count toward the 36-course-credit requirement for the bachelor's degree.

NORMAL PROGRAM OF STUDY

A student in Yale College normally takes four or five term courses, or their equivalent, for each of eight terms.

1. **Minimum course load**
 - a. Prior to midterm, a student must be enrolled in a program of study worth at least three course credits.
 - b. After midterm and before the first day of reading period, a student may drop two course credits by withdrawing from one or more courses and receiving the

neutral designation W (Withdraw) in those courses. A student may not carry a schedule of courses that will earn fewer than two course credits and a W in a term.

c. Note: In rare circumstances, urgent medical needs arise during the term that require significant time for treatment, such as participation in an intensive outpatient program. In such cases, and with the endorsement of Yale Health and Student Accessibility Services, students may petition the Yale College Committee on Honors and Academic Standing for permission to drop to two course credits at any point in the term while still remaining in good academic standing. (*Policy updated January 2023.*)

2. **Course loads requiring permission** A three-course-credit program of study or a six-course-credit program of study requires the permission of the residential college dean. It is assumed that any student who requests permission to carry six or more course credits does not intend to drop any of them. Permission for a program of six course credits will normally not be given to a student who is not in academic good standing.
3. **Seven course credits in a term** Students must petition the Yale College Committee on Honors and Academic Standing through their dean's office for permission to take a program worth seven credits in a term. In the petition the student must explicitly state an intention to complete all the courses proposed.
4. **Independent study** Opportunities for independent study exist in many programs and departments under various designations: directed reading or research; individual reading or research; independent research or study; independent or special projects; individual instruction in music performance; independent, individual, or special tutorials; and the senior essay or project, among others. Note that course credit earned in such study may not be used toward fulfillment of the distributional requirements, and students may not enroll in independent study courses in the graduate or professional schools. Students may not receive academic course credit for paid research assignments; they may not be paid for any work performed to meet academic requirements or that carries academic course credit.

Approval for any such particular course is given by the department or program; however, approval for an independent study course is also required from the Yale College Committee on Honors and Academic Standing if certain limits are exceeded. A student must petition the Committee for permission to enroll in more than one such course credit in any one term before the senior year, or in more than two such course credits in any one term during the senior year. Permission is also required for a student to enroll in more than three such course credits in the first six terms of enrollment; included in this total are any independent study courses completed in Yale Summer Session that are applied to the Yale College transcript. In the petition the student must give sound academic reasons for exceeding these limits, and provide evidence that the additional work in independent study will not be done at the expense of the breadth and depth of study being pursued in regular Yale College courses.

Students admitted to the Program for the Simultaneous Award of the Bachelor's and Master's Degrees are not required to seek permission of the Committee on Honors and Academic Standing to enroll in independent study courses when that

enrollment exceeds the limits above and such work is required for the completion of that program.

D. Promotion and Good Standing

REQUIREMENTS FOR PROMOTION

1. To be promoted to sophomore standing after two terms of enrollment, a student must have earned at least eight course credits or the equivalent and have fulfilled the distributional requirements for the first year.
2. To be promoted to junior standing after four terms of enrollment, a student must have earned at least sixteen course credits or the equivalent and is expected to have fulfilled the distributional requirements for the sophomore year.
3. To be promoted to senior standing after six terms of enrollment, a student must have earned at least twenty-six course credits or the equivalent and is expected to have fulfilled the distributional requirements for the junior year.

REQUIREMENTS FOR ACADEMIC GOOD STANDING

At the conclusion of each term of enrollment, a student must have earned enough course credits to be in academic good standing.

1. At the end of the first term at Yale, a student must have earned at least four course credits.
2. At the end of the second term, a student must have earned at least eight course credits.
3. At the end of the third term, a student must have earned at least twelve course credits.
4. At the end of the fourth term, a student must have earned at least sixteen course credits.
5. At the end of the fifth term, a student must have earned at least twenty-one course credits.
6. At the end of the sixth term, a student must have earned at least twenty-six course credits.
7. At the end of the seventh term, a student must have earned at least thirty-one course credits.

Regardless of the number of credits accumulated, a student is not in academic good standing if the student's record shows three grades of F in a term or over two or three successive terms. "Successive terms" means successive terms in which the student enrolls, whether or not broken by a withdrawal or by a leave of absence. See section I, Academic Penalties and Restrictions, "Dismissal for Academic Reasons" and "Makeup of Course Deficiencies for Promotion or Academic Good Standing."

E. Course Enrollment

Students may enroll in courses only by entering courses onto their registration worksheet in Yale Course Search during the registration period, or during the add/drop period, according to the dates listed in the Yale College Calendar with Pertinent Deadlines. Class attendance does not constitute enrollment. The course schedule is an

important record of a student's enrollment plans, and students are responsible for the timely and accurate entering and maintaining of course schedule information during the registration and add/drop periods. The course elections that a student indicates on a course schedule or course change notice will appear on the student's transcript unless the student formally withdraws from a course before the relevant deadline, as listed in the Yale College Calendar with Pertinent Deadlines. See section F, Withdrawal from Courses.

The following rules govern students' enrollment in courses during the fall and spring terms of the academic year:

1. **Registration period** For both fall and spring terms, all students must enroll in at least three course credits before the published deadline listed in the Yale College Calendar with Pertinent Deadlines. Continuing students will enroll in the prior term; new and reinstated students will be notified of their registration dates for the fall term and will enroll for the spring term with continuing students. Students who fail to enroll in at least three course credits by the deadline will be charged a late-registration fee of \$50.
2. **Add/drop period** At, or near, the beginning of each term, the registration system opens for all students to adjust their course enrollment. Final course selections and adjustments must be completed by the published deadline listed in the Yale College Calendar with Pertinent Deadlines. It is the student's responsibility to obtain all necessary permissions before the deadline.
3. **Addition of a new course after the add/drop period** The addition of a new course after the add/drop period will not be permitted save by exceptional action of the Committee on Honors and Academic Standing. Students who seek an exception should consult immediately with their residential college dean. Permission to elect a new course after the add/drop period must be requested by completing a course change notice that includes a petition and the written approval of the course instructor. The petition should explain in detail why the course is necessary to the student's schedule and why the student was unable to elect the course by the end of the add/drop period. Timeliness is an essential feature of any request to add a course to the course schedule; a delay in consulting with the dean or in submitting a complete petition will normally be grounds for denial. A fee of \$20 will be charged for the processing of an approved course change notice on which the election of a new course is requested. A student may not elect a new course after midterm, as published in the Yale College Calendar with Pertinent Deadlines, unless such election is made to correct a clerical error on the course schedule. A change of level in courses in which the subject is taught in an ordered progression, as for example in languages or in mathematics, is not considered the addition of a new course. Such a change may be made with the approval of the instructors involved (and, if necessary, with the added permission of the director of undergraduate studies in the subject). Similarly, a change of section in the same course is not considered the addition of a new course.
4. **Fines for clerical errors** A student who submits a course schedule or course change notice with clerical errors or omissions of data is liable to a fine of \$50.
5. **Overlapping meeting times** A student may not elect courses with meeting times that overlap. If, for good cause, a student is obliged to elect two

courses which overlap in meeting times, the student must supply the residential college dean at the beginning of the term with the written permission of both instructors, along with confirmation that the scheduled final exams as given in Yale Course Search do not themselves overlap. The student must also petition the Committee on Honors and Academic Standing, through their college dean's office, explaining why the student must enroll in both courses in the current term and how the student will meet all the requirements for both courses. No more than two courses may overlap, and the length of the overlap permitted depends on the course format as described below:

(a) Two synchronous courses may have a small and insignificant overlap in meeting times (i.e., no more than 15 minutes once per week, including travel time), with permission from the instructors of both courses, via petition to the residential college dean, so long as the final exams do not overlap.

(b) One asynchronous course may overlap with one synchronous course, including for the full class meeting time, with the permission of both instructors, via petition to the residential college dean, so long as the final exams do not overlap.

(c) Two asynchronous courses may overlap with each other, including for the full class meeting time, with the permission of both instructors, via petition to the residential college dean, so long as the final exams do not overlap.

Failure to file a complete and timely petition may result in the loss of credit for both courses.

6. **Courses requiring permission** Some courses require permission of the instructor to enroll; others require permission of the director of undergraduate studies. It is the responsibility of the student to secure the appropriate permission before they can be registered in a course.
7. **Courses that do not require permission** Courses that do not require permission for enrollment may nevertheless be limited in their enrollment (i.e., "capped") at the beginning of the term, depending upon, for example, the number of teaching assistants available, the size of the appropriate meeting space, or other instructional needs.
8. **Prerequisites** Students are expected to have met the prerequisites published in course descriptions. If a student wishes to elect a course for which prerequisites are indicated but has not met those prerequisites, it is the student's responsibility to secure the permission of the instructor and, where appropriate, the director of undergraduate studies before enrolling. The registrar may drop the student from the class if the student has not met the prerequisites for enrollment.
9. **Teaching evaluations** For the advancement of teaching in Yale College, anonymous teaching evaluations are made available through the Yale Student Information System (SIS). Students are expected to participate in this evaluation process for any eligible Yale College course in which they are enrolled. Students who withdraw from a course after midterm are invited but not required to participate.
10. **Selection of a less advanced course in the same subject** In certain subjects, such as mathematics, languages, and the sciences, knowledge of the subject is acquired in an ordered progression. That is, the concepts and skills introduced in one course are necessary, or prerequisite, for mastery of the material in subsequent courses in that

field. Occasionally a student, having completed an intermediate or advanced course in a subject, may take a less advanced one in that same subject. In such a case, although the student cannot receive course credit for both courses, each course will appear on the student's transcript with the grades earned; however, the student will receive course credit only for the more advanced course. A student may sometimes be permitted to complete an intermediate or advanced course without having first completed a less advanced course in a subject; in such a case, the student does not receive course credit for the less advanced course by virtue of having completed the more advanced course.

11. **Repeated enrollment in the same course** Courses may not be repeated for credit, except for courses marked "May be taken more than once" or "May be repeated for credit." In such cases, the repeated course earns no additional distributional credit. On rare occasions, a student may take the same course over again, or may take a course with the same content as another course the student has already passed. In such cases, the student receives credit for the course only once. Should a student take the same or an equivalent course twice, each course with its grade appears on the transcript. The student receives course credit for the higher grade if one is earned; in such an event, course credit is not given for the lower grade. Note, however, that both grades are included in the calculation of a student's grade point average (GPA) and in the calculation for General Honors.
12. **Academic credit and paid positions** Students may not receive academic course credit for paid research assignments; they may not be paid for any work performed to meet academic requirements or that carries academic course credit.
13. **Placement in language courses** Students placed by a language program or by their score on the Advanced Placement examination into a particular level of a language may not earn course credit for the completion of a course in that language at a level lower than the placement. For example, a student placed into the third term (L3) of a language earns no course credit for the completion of an L1 or L2 course in that language. Should a student complete a language course at a level lower than the placement, the lower-level course with its grade appears on the transcript but earns no credit toward graduation.
14. **Use of vertebrate animals** If the satisfactory completion of a course will require the use of vertebrate animals in experiments, the student must be notified of that requirement at the first meeting of the course. If a student objects on ethical grounds to participating in the animal usage in question, it is the student's responsibility to discuss the matter with the faculty member in charge and not to enroll in the course if no alternative acceptable to the faculty member can be arranged.
15. **Field trips** If the satisfactory completion of a course will require participation in a field trip, students should understand that there are inherent risks, including the risks of travel, involved in such an activity. If a student objects to assuming these risks, it is the student's responsibility to discuss the matter with the faculty member in charge and not to enroll in the course if no alternative acceptable to the faculty member can be arranged. Yale College's policies regarding field trips can be found at the Yale College Academic Field Trip Policies website.
16. **Fieldwork** If a student is conducting fieldwork away from the Yale campus, under the supervision of a faculty member, he or she should discuss the inherent risks of

such work and pre-departure guidelines with the supervising faculty member or director of undergraduate studies.

F. Withdrawal from Courses

Students are permitted to withdraw from courses for which they have enrolled in a term until 5 p.m. (ET) on the last day of classes before the reading period in that term. Withdrawal from a course can be accomplished only by the submission of a course change notice through the office of the residential college dean. A fee of \$20 will be charged for the processing of an approved course change notice on which withdrawal from a course is requested. Formal withdrawal is important, because failure to receive credit for courses in which students are enrolled will be recorded as F on their transcripts and may open them to the penalties described in section I, Academic Penalties and Restrictions, “Academic Warning” and “Dismissal for Academic Reasons.”

1. **Transcripts** Each course listed on a student’s course schedule appears on the student’s transcript unless the student withdraws from the course by midterm. See paragraph 3, below.
2. **Permission** All course withdrawals require the permission of the residential college dean.
3. **Deadlines for withdrawal from courses** If a student formally withdraws from a full-term course by midterm, as published in the Yale College Calendar with Pertinent Deadlines, then after the registrar has recorded the withdrawal, the transcript will contain no indication of that course. If a student formally withdraws from a half-term course by the relevant deadline published in the Yale College Calendar with Pertinent Deadlines, then after the registrar has recorded the withdrawal, the transcript will contain no indication of that course.

If a student formally withdraws from a full-term course after midterm but before 5 p.m. (ET) on the last day of classes before the reading period, the transcript will record the course and show the neutral designation W (Withdraw) for the course. If a student enrolled in a half-term course formally withdraws from it after the deadline for the course to be removed from the transcript, but by the last date a withdrawal is permitted from the course, the student’s transcript will record the neutral designation W (Withdraw) for the course. See the Yale College Calendar with Pertinent Deadlines for both dates in each term. The deadlines apply to all courses, whether or not a particular course observes the reading period.

A change of level in courses in which the subject is taught in an ordered progression, as, for example, in languages or in mathematics, is not considered a course withdrawal and does not result in the recording of a W (Withdraw).

After these deadlines, withdrawal from a course is not permitted. An exception will be made only for a student who withdraws from Yale College for medical reasons as certified by Yale Health after the beginning of the reading period but by the last day of the final examination period; in such a case the student will be permitted to withdraw from a course with a mark of W (Withdraw).

4. **Withdrawal from a credit/year sequence** For those credit/year course sequences in which a student receives the mark of SAT or NSAT for the first term and a letter grade for the second, withdrawal from the sequence after the first term is completed

but before the second term is completed will result in the recording of a mark of W (Withdrawn) for the first term.

5. **Lack of formal withdrawal** If, when grades are due, the instructor of a course notifies the registrar that a student has not successfully completed a course from which the student has not formally withdrawn, then a grade of F will be recorded for that course on the student’s transcript. See section B, Grades, “General Regulations Concerning Grades and Transcripts.” See also section H, Completion of Course Work, “Work Incomplete at the End of Term” and “Postponement of Final Examinations.”
6. **Withdrawal and Leave of Absence from Yale College** A student who is withdrawn or on leave of absence, including medical leave of absence, from Yale College may not attend classes or complete work that was assigned in the term in which the leave or withdrawal occurred, even if the deadline for such assignments was previously extended by the instructor or by the residential college dean. (*Policy updated January 2023.*)
7. **Transcripts of students withdrawn from Yale College** It follows that if a student withdraws from Yale College by midterm, the transcript will not show that the student has been enrolled in any full time courses during that term. If a student withdraws from Yale College after midterm, but before 5 p.m. (ET) on the last day of classes before the reading period, the transcript will record the student’s courses with the designation W (Withdrawn). If a student withdraws from Yale College after the beginning of the reading period, the transcript will show the student’s courses with grades of F unless an instructor reports a passing grade for the student in any of the courses. The only exception is for a student who withdraws from Yale College for medical reasons after the beginning of the reading period but before the end of the term; see paragraph 3, above.

G. Reading Period and Final Examination Period

1. **Due dates for course work** It is expected that instructors will require all course assignments, other than term papers and term projects, to be submitted at the latest by the last day of reading period. Term papers and term projects are to be submitted at the latest by the last day of the final examination period. For the dates of the reading period and final examination period, consult the Yale College Calendar with Pertinent Deadlines. Instructors do not have the authority to give permission for these deadlines to be extended; only the residential college dean has this authority. See section H, Completion of Course Work, “Work Incomplete at the End of Term.” Even if an extended deadline should be announced by the instructor, a grade reflecting work submitted after the end of the term cannot be accepted unless a Temporary Incomplete was authorized by the student’s residential college dean.
2. **Reading period** The Yale College Faculty established the reading period between the end of classes and the beginning of final examinations in order to provide a period of about a week during which students might conclude their course work and prepare for final examinations. The instructor of each course determines whether or not that course observes the reading period. A course that does not observe the reading period is identified in the course listings by the abbreviation “RP” at the end of the course description or by a phrase such as “Meets RP” or “Meets during reading period.”

The assumption underlying the faculty's institution of the reading period was that no additional assignments would be required during the reading period in a course observing it, but that students would use the reading period in their own way to consolidate and augment the work of the course. Such being the case, no final examination may be administered during the reading period. A final examination in a course, whether or not the course observes the reading period, must be administered during the final examination period. No take-home final examination may be due during the reading period. An instructor may, however, set the due date for a term paper or project during the reading period.

3. **Final examinations** Yale College expects every course to conclude with a regular final examination or with a substitute for such an examination. The substitute should be in the nature of a final examination in that it requires the student to demonstrate proficiency in the discipline and subject matter of the course. Substitutes may include, for example, an oral presentation or examination, a term essay, or the last of a series of hour tests administered during the last week of classes. Final examinations normally last either two or three hours but, in either case, students are permitted to take an additional half-hour before being required to turn in their answers. This additional time is given for improving what has already been written, rather than for breaking new ground.
4. **Scheduling of final examinations** The University Registrar's Office has assigned a specific time and date for the administration of final examinations in most courses in Yale College. The time of the final examination is determined by the meeting time of a course during the term. If the meeting time of a course is changed from that originally published, the time of the examination is defined by the new meeting time. If a course is published with no scheduled examination but the instructor subsequently decides to offer a final examination, it must be administered at the time defined by the meeting time of the course. The schedule of final examinations may be found in General Information under the heading Final Examination Schedules.
5. **Date of administering final examinations** Since the final examination schedule has been carefully designed to make efficient use of the entire final examination period and to minimize overcrowding of students' schedules, a final examination must be administered on the date and at the time specified. On occasion instructors have administered final examinations at times different from those assigned. Such an arrangement is allowed under the following conditions: (a) that two different and distinct final examinations be administered; (b) that one of these examinations be administered at the regularly specified time within the final examination period; (c) that the alternative examination be administered at a regular examination starting time during the final examination period; and (d) that no student be required to obtain permission to take the alternative examination.
6. **Take-home final examinations** Take-home final examinations are sometimes substituted for regular final examinations. If a course has been assigned a final examination date, a take-home examination for that course is due on the scheduled examination day. If a course has not been assigned a final examination date, a take-home examination for the course is due on the day specified in the final examination schedule by the meeting time of the course. See Final Examination Schedules. If a course does not meet at a time covered by the final examination

schedule, a take-home examination may not be due during the first three days of the final examination period. No take-home examination may be due during the reading period.

7. **Due dates for term grades** An instructor is required to submit term grades promptly after the completion of a course. For due dates, consult the Yale College Calendar with Pertinent Deadlines.

In submitting term grades, the instructor is expected to apply appropriate penalties for missed or incomplete work unless the late submission of the work has been authorized by the student's residential college dean or by the Committee on Honors and Academic Standing. If an instructor reports a mark of Incomplete for which there has been no authorization by the college dean, the Incomplete will be recorded by the University Registrar's Office as a grade of F.

8. **An hour test at the end of term instead of a final examination** Some instructors do not give final examinations of the usual two-and-one-half-hour or three-and-one-half-hour length, but instead terminate their courses with an hour test that is the last in a succession of hour tests administered during the term.

For courses that do not observe the reading period, this hour test may be administered during the reading period, since, in such courses, regular class meetings are scheduled to extend through the reading period. A course that does not observe the reading period may also administer the hour test during the final examination period at the time specified in the final examination schedule.

For courses that do observe the reading period, the hour test may not be administered during the reading period, but may be administered only during the last week of classes or during the final examination period at the time specified in the final examination schedule.

9. **Senior departmental examinations** In those major programs requiring a senior departmental examination, that examination is scheduled on the two weekdays preceding the final examination period in the fall and spring terms. In a department or program in which a two-day written senior departmental examination is administered on those days, seniors may, with the written consent of the appropriate instructors, be excused from final examinations in as many as two courses in the major in the term in which they take the departmental examination. In a department or program in which the senior departmental examination takes place on only one of the two scheduled days, a senior may, with the written consent of the instructor, be excused from the final examination in one course in the major in the term in which the departmental examination is taken. If the senior departmental examination takes place before the scheduled days, or if a senior essay or senior project takes the place of the examination, a student may not omit a final examination.

H. Completion of Course Work

SUBMISSION OF COURSE WORK TO INSTRUCTORS

Students in Yale College are expected to take personal responsibility for the timely delivery to their instructors of all course work, including examinations, in the manner and format prescribed by the instructors. In-person submission, either to the instructor

or to someone explicitly designated by the instructor, such as a teaching fellow or an administrative assistant, is always the best way to ensure that the work has been received. Students who submit course work in a manner other than in person and directly to an appropriate individual (e.g., place it under a door or in a box in a hallway or send it via electronic means), should—even when that is the method directed by the course instructor—confirm as soon as possible after the submission that the work has been received. Students who must use postal services to submit a course assignment, because they will be unavoidably absent from campus at the time an assignment is due, should ascertain in advance from the instructor the correct mailing address and use receipted mail services to establish the date of mailing.

Instructors are not required to accept course work sent over a computer network to their computer, printer, or email account unless they have explicitly authorized such electronic submission in the course syllabus or have made a special arrangement with the student. Instructors may establish a deadline for electronic submission of a particular assignment different from the deadline for submission of the same assignment on paper.

LATE OR POSTPONED WORK

There are three kinds of late or postponed work: (1) work late during term time; (2) work incomplete at the end of term; and (3) postponed final examinations. Instructors of courses may, during term time, give permission to make up late or missed work, provided that such work is submitted before the end of term. Only the residential college dean, however, may authorize the late submission of work still incomplete at the end of term, or the postponement of a final examination.

When students know in advance that they must miss or postpone work for a legitimate reason, as described in “Work Missed During the Term” and in “Postponement of Final Examinations” below, they should inform the instructor and the residential college dean as soon as possible.

WORK MISSED DURING THE TERM

The basic responsibility for permitting postponement of work during the term rests with the instructor. However, the residential college dean may give permission for a student to make up work missed or delayed during the term because of an incapacitating illness or incapacitating condition of any kind, the death of a family member, or a comparable emergency. The residential college dean also has authority to give permission to make up work missed because of the observance of religious holy days and because of participation required in intercollegiate varsity athletic events. Only in these cases does a residential college dean have authority to give permission to make up late work during term time. This permission is conveyed by means of a special form which, upon approval by the college dean, is sent to the student's instructor. Students participating in events of intramural or club sports, as differentiated from varsity events sponsored by the Department of Athletics, are not eligible for a postponement of work by the dean on account of those events.

In all other cases of work missed during the term, permission to make up course work must be secured directly from the instructor of the course, since the instructor is the only person who can decide, in the context of the nature and requirements of the course, whether such permission is appropriate. This permission may not, however,

extend beyond the end of the term. Permission to submit work still incomplete at the end of term may be granted only by a student's residential college dean. See "Work Incomplete at the End of Term" below.

WORK INCOMPLETE AT THE END OF TERM

Only the residential college dean has authority to give permission to a student to submit work in a course after the end of term. The college dean may give such permission because of an incapacitating illness or incapacitating condition of any kind, because of a serious family emergency, or because of another matter of comparable moment. In such cases, the college dean may authorize a mark of Temporary Incomplete for a period not to exceed one month from the beginning of the final examination period. Note that the mark of Temporary Incomplete refers to unfinished course work that was originally due in the closing weeks of the term, and not to assignments (such as lab reports, problem sets, reading responses, etc.) originally due prior to the last day of classes. Note also that the mark of Temporary Incomplete does not refer to a final examination missed for any reason; see "Postponement of Final Examinations" below.

The residential college dean, in authorizing a mark of Temporary Incomplete, will stipulate the date on which the student's late work will be due and the date on which the instructor is expected to submit a course grade to the registrar. The college dean may not set this second date later than one month after the beginning of the final examination period. If the student's work has not been completed in time for the instructor to report a grade to the registrar by the deadline stipulated, then the instructor will submit a grade for the student that reflects the absence of the missing work, or the registrar will convert the mark of Temporary Incomplete to a grade of F. See section B, Grades, "General Regulations Concerning Grades and Transcripts," and section F, Withdrawal from Courses.

Permission for a mark of Temporary Incomplete to last beyond one month from the beginning of the final examination period can be granted only by the Yale College Committee on Honors and Academic Standing. Such an extension may be given only for a brief period of time, usually one to two weeks, and only in response to extraordinary circumstances, usually of a medical nature. A petition for such permission must be submitted at the earliest possible date. In considering such requests, the Committee on Honors and Academic Standing takes into account the original deadline for submission of the work and the date on which a petition is delivered to the committee.

USE OF COMPUTERS AND POSTPONEMENT OF WORK

Problems that may arise from the use of computers, software, and printers normally are not considered legitimate reasons for the postponement of work. A student who uses computers is responsible for operating them properly and completing work on time. (It is expected that a student will exercise reasonable prudence to safeguard materials, including backing up data in multiple locations and at frequent intervals and making duplicate copies of work files.) Any computer work should be completed well in advance of the deadline in order to avoid last-minute technical problems as well as delays caused by heavy demand on shared computer resources in Yale College.

POSTPONEMENT OF FINAL EXAMINATIONS

Only the residential college dean may authorize postponement of a final examination. The residential college dean may give such permission because of an incapacitating illness or incapacitating condition of any kind, because of a family emergency requiring the student's absence from New Haven, or because of another matter of comparable moment. The residential college dean may also authorize such a postponement because of the observance of religious holy days, or because of participation required in an intercollegiate varsity athletic event. Students participating in events of intramural or club sports, as differentiated from varsity events sponsored by the Department of Athletics, are not eligible for a postponement of final examinations on account of those events. Finally, the college dean may authorize postponement of a final examination if a student has three examinations scheduled during the first two full days of the final examination period, or three examinations scheduled consecutively in the final examination schedules.* The postponement of a final examination for any other reason requires the permission of the Committee on Honors and Academic Standing. A student's end-of-term travel plans are not a basis for the postponement of a final examination. See Final Examination Schedules and section G, Reading Period and Final Examination Period, paragraph 4.

* The final examination schedules indicate three examination sessions, or time slots, per day: one in the morning, one in the afternoon, and one in the evening. Some of these time slots contain examinations; others do not. A college dean may postpone an examination if a student has three examinations scheduled within any four consecutive time slots, whether or not each of those time slots has an examination assigned to it. See Final Examination Schedules. Occasionally an instructor may arrange an option for an alternative final examination in addition to the regularly scheduled examination. See section G, Reading Period and Final Examination Period, paragraph 5. Such an optional arrangement cannot be the basis for a postponement of an examination if three of a student's final examinations would thereby acquire "consecutive" status.

It is normally the expectation that when a student begins a final examination but does not complete it, the student will receive credit only for the work completed on the examination. If, however, a student becomes unable to complete an examination because of a sudden and serious illness or other emergency during the examination, the student may request authorization from the residential college dean to take a makeup final examination. In such a case, the student must explain their departure to the instructor, or to some other person proctoring the examination, before leaving the room, and must contact Yale Health or the residential college dean as soon as possible thereafter.

Instructors generally administer makeup final exams. Makeup examinations for the fall term should be scheduled by the end of the second week of classes in the spring term. Makeup examinations for underclass students who miss final examinations in the spring term should be scheduled by the end of the second week of classes in the following fall term. Students who will not be enrolled at these times—whether because they are on leave of absence or on a Year or Term Abroad, or because they have withdrawn from Yale—must contact their residential dean's office in advance of the second week of classes about alternative arrangements. The registrar automatically

records a grade of F in a course for a student who fails to take an officially scheduled makeup examination in that course at the appointed time.

No fee will be charged for a makeup examination necessitated by illness, family emergency, the observance of a religious holy day, or participation required in an intercollegiate varsity athletic event. A charge of \$35 will be made for the administration of a makeup examination occasioned by a conflict between two final examinations scheduled at the same time, or three examinations scheduled in the first two days of the examination period, or three final examinations scheduled in consecutive examination periods. Ordinarily there will be a charge of \$35 for makeup examinations authorized for special reasons approved by the Committee on Honors and Academic Standing.

Permission to postpone a final examination does not authorize a student to submit other work late in that course. See “Work Incomplete at the End of Term,” above.

I. Academic Penalties and Restrictions

CUT RESTRICTION

Regular classroom attendance is expected of all students. While Yale College enforces no general regulation concerning attendance, instructors of individual courses may require it of all students. This is particularly the case in discussion groups, seminars, laboratories, and courses in languages.

A student who, in the opinion of the instructor and of the residential college dean, has been absent from a course to an excessive degree and without excuse may at any time be placed on Cut Restriction in that course or in all courses. A student on Cut Restriction who continues to be absent from a course may, with the concurrence of the college dean and the Committee on Honors and Academic Standing, be excluded from it without credit. See “Exclusion from Courses” below.

EXCLUSION FROM COURSES

Any student may, because of excessive absences or unsatisfactory work, be excluded from a course without credit at any time upon the recommendation of the instructor or department concerned to the residential college dean and the Committee on Honors and Academic Standing. If the exclusion occurs after midterm and before the first day of the reading period, the student’s record will show a mark of W for the course.

ACADEMIC WARNING

Academic Warning is an indication that a student’s scholastic record is unsatisfactory. Students on Academic Warning who do not pass all of their courses in the term in which they are on Academic Warning will be dismissed for academic reasons. No matter how many course credits a student has earned, Academic Warning is automatic in the following cases: (a) failure in one term to earn more than two course credits; (b) a record that shows two grades of F in one term; (c) in two successive terms, a record that shows a grade of F for any course. The college deans attempt to give written notification of Academic Warning to students whose records show these deficiencies, but such students should regard themselves as being on warning even in the absence of written notification. A student permitted to continue in Yale College with fewer than the number of course credits ordinarily required for academic good standing may be placed on Academic Warning, and in such a case the student will be

notified that he or she has been placed on warning. See section D, Promotion and Good Standing, “Requirements for Academic Good Standing.” The Committee on Honors and Academic Standing may at its discretion disqualify a student on Academic Warning from participation in recognized University organizations.

DISMISSAL FOR ACADEMIC REASONS

1. **Failure in three classes** A record that shows three grades of F in a term or over two or three successive terms will normally result in the student’s dismissal from Yale College. “Successive terms” means successive terms in which the student enrolls, whether or not broken by a withdrawal or by a leave of absence. While Yale Summer Session grades are recorded on the Yale College transcript, they are not counted towards this total, because attendance at Yale Summer Session does not constitute a term of enrollment in Yale College.
2. **Failure to meet requirements for good standing or promotion** A student who has not, at the end of a term, met the minimum requirements for academic good standing, or a student who has failed to meet the minimum standards for promotion, may be dismissed unless permitted by the Committee on Honors and Academic Standing to repair the deficiency. See section D, Promotion and Good Standing, and “Makeup of Course Deficiencies for Promotion or Academic Good Standing” below. A student who is short by more than two credits of the minimum requirements for academic good standing or promotion, even if the student has no grades of F, will be dismissed.
3. **Students on Academic Warning** A record that shows a grade of F for a student who is on Academic Warning in that term will result in that student’s dismissal for academic reasons. See “Academic Warning” above.
4. **Reinstated students** A student reinstated to Yale College after an academic withdrawal who does not, in the first or second term following reinstatement, pass all the courses completed in that term will be dismissed for academic reasons. See section J, Time Away and Return.
5. **Unsatisfactory academic record** In addition, at any point during the year a student may be dismissed from Yale College if in the judgment of the Yale College Committee on Honors and Academic Standing the student’s academic record is unsatisfactory.

MAKE UP OF COURSE DEFICIENCIES FOR PROMOTION OR ACADEMIC GOOD STANDING

A student who has failed to satisfy the requirements for promotion or for academic good standing, if permitted to continue by the Committee on Honors and Academic Standing, must repair the deficiency promptly. Such deficiencies are to be repaired before the opening of the next fall term by work in summer school. The institution to be attended and the courses to be taken require the approval of the residential college dean. See section Q, Credit from Other Universities. Only in extraordinary circumstances will a student be allowed to repair a deficiency by carrying an additional course during the following academic year. Course deficiencies may not be repaired under any circumstances by the application of acceleration credits.

J. Time Away and Return: Postponement, Leave of Absence, Medical Leave of Absence, and Withdrawal

Updated January 2023.

POSTPONEMENT

1. **Newly admitted students** may ask to postpone their matriculation by one year. One-term postponements are not permitted, as new students must begin in a fall term. Requests for postponements are ordinarily approved. For more details, see Important Information for Students Considering Postponed Matriculation on the Undergraduate Admissions website.
2. **Petition for Postponement:** Admitted students who wish to postpone matriculation should make their request to the Yale Office of Undergraduate Admissions office by May 1; they will be asked to provide a brief statement about their plans for the year of postponement. Late requests will be reviewed up until the fifteenth day of the fall term.
3. **Finances:** Depending on the timing of the postponement request, there may be financial consequences, including a substantial housing relinquishment fee. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid prior to requesting a postponement. The office will help answer questions students may have regarding if and how their postponement might affect financial aid and help identify any impacts to their financial obligations (including student loan information).
4. **Campus Access:** Students who postpone will be considered guests or visitors on Yale’s campus and must follow all relevant university policies regarding guests and visitors. Students living in on-campus housing at the time of taking a postponement are expected to move out within a few days, usually within 72 hours. If invited to stay on campus by other students, they must abide by the three-day limit on guests. See “Guests” under “Conduct in the Dormitories” in the Yale College Undergraduate Regulations.
5. **Email Access:** Students who postpone after activating their Yale College email accounts will ordinarily retain access during their postponement year.
6. **Residential College Affiliation:** Students who postpone after the assignment of a residential college will ordinarily retain that affiliation when they return.
7. **Parental Notification:** Yale College assumes that students who postpone matriculation will inform their parents or guardians that they intend to do so. Ordinarily, the Admissions Office does not notify parents or guardians that a student has postponed but may do so if they believe that such notification is appropriate.
8. **Activity While on Leave:** Students who postpone matriculation are expected to be constructively occupied and to maintain a satisfactory standard of conduct during their postponement year. Note that they may not enroll full-time in a degree-granting program at another institution. Students who choose to pursue part-time

studies at other institutions should bear in mind that any credits earned will not necessarily count towards their Yale degree.

9. **Matriculation after Postponement:** Students who postpone will automatically be included in the following year's admitted class.

LEAVE OF ABSENCE

Students in Yale College may ask to take up to four terms of leaves of absence. Requests for leaves of absence are ordinarily approved, provided that the student departs in academic good standing at the end of a term and returns at the beginning of a term. See "Requirements for Academic Good Standing" in "Section D, Promotion and Good Standing" in the Yale College Academic Regulations.

1. **Petition for a Leave of Absence:** Students who wish to take a leave of absence must petition the Committee on Honors and Academic Standing through their residential college dean. For a fall term leave of absence, students must submit a petition by May 1; late requests will be accepted up to the fifteenth day of the fall term. For a spring term leave of absence, petitions must be received by the fifteenth day of the spring term.
2. **Activity While on Leave:** Many students engage in focused activities while on leave (e.g., part-time coursework, volunteering, employment, and so on) but this is not required.
3. **Finances:** Depending on the timing of the leave of absence request, there may be financial consequences, including a substantial housing relinquishment fee. See "Rebates of Undergraduate Charges" under "Financial Services" in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid prior to requesting a leave. The office will help answer questions students may have regarding if and how their leave might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students taking a leave of absence who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
4. **Total Terms of Leave:** Students are eligible for a total of four terms of leave of absence. These terms need not be taken consecutively. (Note that, as a COVID-19 accommodation, leaves taken during academic years 2020-21 and 2021-22 do not count against the total terms of leave. Medical leaves of absence also do not count against this total.) Students who do not return from leave after a fourth term will be withdrawn for personal reasons.
5. **Accelerated Students:** Students taking an accelerated degree by use of acceleration credits who have had four terms of leave of absence may receive a fifth term of leave if the fifth term of leave is needed to bring the student's pattern of attendance into conformity with the pattern of attendance stipulated for an accelerated degree. See "Enrollment requirements, including required patterns of attendance" in "Acceleration Policies" in the Yale College Academic Regulations.
6. **Campus Access:** Students on leave may be present on Yale's campus as guests or visitors and must follow all relevant university policies as such. Students living in

on-campus housing at the time of taking leave are expected to move out within a few days, usually within 72 hours. If invited as a guest in the dorms by other students, they must abide by the three-day limit. See “Guests” under “Conduct in the Dormitories” in the Yale College Undergraduate Regulations. Students on leave may usually participate in undergraduate activities and registered student organizations as a guest but may not hold leadership positions or participate in university sponsored or funded international travel.

7. **Email and Library Access:** Students on leave retain remote library privileges and email access.
8. **Campus Employment:** Students on leave may hold student employment jobs; they may also work at Yale in other employment categories.
9. **Disciplinary Violations:** A leave of absence does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
10. **Parental Notification:** Yale College assumes that students who take leaves of absence will inform their parents or guardians that they intend to do so. Ordinarily, residential college deans do not notify parents or guardians that a student has taken a leave of absence but may do so if they believe that such notification is appropriate.
11. **Health Coverage:** Students on a leave of absence are eligible to enroll in the Yale Health Affiliate Coverage for Students for up to two terms following their leave. This enrollment is not automatic. Students are responsible for completing and submitting the appropriate enrollment forms and full payment to Yale Health Member Services by September 15 for the full year or fall term, and by January 31 for the spring term. See “Leave of Absence” under “Health Services” in the Yale College Undergraduate Regulations. Application forms and details about medical coverage while on a leave of absence may be obtained from the Member Services Department of Yale Health.
12. **Canceling a Leave of Absence:** Students may cancel a leave of absence for either term as late as the first day of classes in the term for which the leave has been requested. (Given this deadline, students who request a leave during the first fifteen days of the term may not subsequently cancel that request.) The deadlines for payment of the term bill and the penalties for late payment apply. See “Payment of Fees” under “Financial Services” in the Yale College Undergraduate Regulations.

RETURNING FROM A LEAVE OF ABSENCE

1. Students on a leave of absence are automatically reinstated. They ordinarily return from a leave of absence at the beginning of the term specified in their leave petition to the Committee on Honors and Academic Standing, but they may extend their leave by additional terms if they wish, up to the total terms of eligible leave as described above. Returns must always be at the start of term.
2. To return from leave, students must notify their residential college dean no later than the first day of the term in which they wish to return.

3. Students who are required to live on campus, or who wish to do so, must be in contact with their dean well in advance of their return from leave to make those arrangements.
4. Note: A student on a leave of absence from Yale College with pending disciplinary charges will not be eligible to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.

MEDICAL LEAVE OF ABSENCE

Yale College is committed to supporting the health and well-being of all members of its campus community. Yale recognizes that students may experience medical situations that significantly limit their ability to function successfully and safely in their role as students. A medical leave of absence permits students to take a break from Yale and their studies at any point in a term, regardless of their academic standing, so that they may address medical concerns and later return to Yale to pursue their educational goals. When they wish to return, students on medical leaves of absence participate in a medical clearance process as described below.

1. **Petition for a Medical Leave of Absence:** Students who wish to take a medical leave of absence should consult with their residential college dean, who will guide them through the process.
 - a. Students should first discuss the full range of options, including potential accommodations that might allow them to remain enrolled, with their residential college dean; a consultation with Student Accessibility Services may also be helpful. Students who wish to pursue a medical leave of absence should also discuss the process for returning to their studies with their dean.
 - b. To request a medical leave of absence, students meet with a Yale Health clinician – the Chief of Student Health, the Chief of Mental Health and Counseling, or one of their official designees – who will conduct an individual assessment to determine if a medical leave of absence is appropriate. Students under the care of a non-Yale Health clinician may ask their external clinician to submit medical documentation in order to inform the assessment of the Yale Health clinician. Students' residential college deans will advise them on how to arrange this meeting.
 - c. If the Yale Health clinician determines that a medical leave of absence is appropriate, they will do so in writing, including the basis for the decision, when the student may be eligible for return, and any conditions the student must satisfy before a return, including, but not limited to, completing the medical clearance process for return.
 - d. With the support of the Yale Health clinician, the student may submit a medical leave of absence request to the residential college dean. The dean will forward this request to the Committee on Honors and Academic Standing for approval, which will ordinarily be granted.
 - e. In the unlikely event that a request for a medical leave of absence is not granted, the student will have seven (7) days from the date of notification to appeal the decision in writing to the Dean of Yale College. The appeal should include

the student's reasons for wanting a medical leave of absence, along with any supporting clinical documentation that the student wishes to be considered.

2. **Involuntary Medical Leave of Absence:** In rare circumstances the Dean of Student Affairs may require a student to take a medical leave of absence. This action would only be taken after an individualized assessment concludes that (i) there is a significant risk to the student's health or safety, or to the health or safety of others, or that the student's behavior severely disrupts the University environment, and (ii) that no reasonable accommodations can adequately reduce the risk or disruption.
 - a. The Chief of Student Health or the Chief of Mental Health and Counseling will conduct a clinical assessment. If they conclude that a student should be placed on an involuntary medical leave of absence, they will make that recommendation to the Dean of Student Affairs, including an explanation and a recommendation for the length of the leave. A student may also be placed on an involuntary medical leave of absence if they refuse to cooperate with efforts deemed necessary by Yale Health and the Dean of Student Affairs to make the assessment discussed above.
 - b. The Dean of Student Affairs will review the relevant information and determine if an involuntary leave of absence is necessary. The circumstances of each student's situation are assessed individually, with attention to the possibility that reasonable accommodations would permit the student to continue to participate in Yale's academic and residential community.
 - c. The Dean of Student Affairs' decision to place a student on an involuntary medical leave of absence will be in writing and will include the basis for the decision, a timeline for student's departure from campus, when the student may be eligible for return, and any conditions the student must satisfy before a return, including but not limited to completing the medical clearance process. It will also include information about the appeal process.
 - d. A student who is required to take a medical leave of absence will have seven days from the date of notification to appeal the decision in writing to the Dean of Yale College. During the appeal process, they are expected to comply with the leave of absence requirements.
3. **Coursework in Process:** Students on medical leaves of absence may not attend classes or submit additional coursework as of the date of their leave. Ordinarily, they are withdrawn from any courses in process. See "Withdrawal and Leave of Absence from Yale College" under "Withdrawal from Courses" in the Yale College Academic Regulations. In some cases, when students have already completed all or most of the coursework for a given class, they may receive a passing grade based on the work already completed. See "Work Incomplete at the End of Term" under "Completion of Coursework" in the Yale College Academic Regulations.
4. **Duration of Medical Leaves of Absence:** The recommendation for the length of the leave will be individualized and based on a clinical assessment. Students may remain on a medical leave of absence for as long as they wish. Students may also request to return early, before the recommended date, or choose to extend their leave beyond the initial recommendation. Yale students typically remain away for at least one full term, not including the term in which the leave occurred, before

returning to Yale College, but this length will vary based on individual circumstances. The medical leave is intended to allow students to achieve the level of sustained stability needed to support a successful return, and students are encouraged to take the time they need.

- a. **Note: Coursework Requirement for Students Away for More than Four Terms:** Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session or at another accredited four-year Bachelor's degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete course work will have their Student Share waived for the year in which they are reinstated.
5. **Activity While on Leave:** Students on medical leaves of absence are expected to receive appropriate medical treatment for the condition(s) that resulted in the leave. Many students also find it helpful to engage, when possible, in other focused activities – e.g., part-time coursework, volunteering, employment, and so on – but this is not required in most situations. Students are encouraged to prioritize medical treatment.
6. **Finances:** The financial consequences of the medical leave of absence will depend on the timing, and on whether the student purchased tuition insurance. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid prior to requesting a leave. The office will help answer questions students may have regarding if and how their leave might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students taking a medical leave of absence who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
7. **Campus Access:** Students on medical leave may be present on Yale’s campus as guests or visitors and must follow all relevant university policies as such. Students living in on-campus housing at the time of a medical leave of absence are expected to move out within a few days, usually within 72 hours. If invited as a guest in the dorms by other students, they must abide by the three-day limit. See “Guests” under “Conduct in the Dormitories” in the Yale College Undergraduate Regulations. Students on leave may usually participate in undergraduate activities and registered student organizations as a guest but may not hold leadership positions or participate in university sponsored or funded international travel.
8. **Email and Library Access:** Students on leave ordinarily retain remote library privileges and email access for three years from the date of their leave.

9. **Campus Employment:** Students on leave may hold student employment jobs; they may also work at Yale in other employment categories.
10. **Disciplinary Violations:** A leave of absence does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
11. **Parental Notification:** Residential college deans ordinarily notify parents or guardians when a student goes on a medical leave of absence.
12. **Health coverage:** Students going onto a medical leave of absence who are already enrolled in the Yale Health Hospitalization/Specialty Coverage have the option to enroll in the Yale Health Affiliate Coverage for Students for one year. This enrollment is not automatic. Students are responsible for completing and submitting the appropriate enrollment forms and full payment to Member Services within 30 days of going on leave. Some financial support may be available for students whose YHH/SC plan was covered by their financial aid. Application forms and details about medical coverage while on a medical leave of absence may be obtained from the Member Services Department of Yale Health.
13. **Yale Summer Session Classes:** Students on a medical leave of absence are eligible to enroll in Yale Summer Session. Students on a medical leave of absence are eligible to apply for Yale Study Abroad summer opportunities. See Yale Study Abroad for full details.

RETURNING FROM A MEDICAL LEAVE OF ABSENCE

Medical leaves are intended to give students time to receive treatment and focus on their health and wellbeing. The medical clearance process by which students return is intended to allow students to demonstrate that they will be able to adequately monitor their own health and function effectively in the autonomous student environment at Yale, without significant disruptions to others in the campus community. The goal is for students to be able to return to campus and be successful in their academic, co-curricular, and extra-curricular pursuits.

1. **Timing of Return:** Students wishing to return from medical leave may request to do so when they feel ready. This may be in keeping with the timeline recommended when they went on leave but need not be. There is no limit to the number of terms a student may be on medical leave.
 - a. Returns must be at the start of a fall or spring term. (Enrollment in Yale Summer Session does not require reinstatement. Yale Study Abroad summer opportunities do require medical clearance. See Yale Study Abroad for full details.)
 - b. Note: A student on medical leave from Yale College with pending disciplinary charges will not be eligible to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.
2. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying

materials must be submitted by 5 p.m. (EST) on November 1. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.

3. **Materials to be Submitted:**

- a. Online *Reinstatement Request* form. Email reinstatement@yale.edu to request form.
- b. Brief statement (approximately 500-750 words) describing the circumstances that led to the medical leave, the treatment received while on leave and any other activities the student deems relevant, and the student's own sense of their readiness to return to Yale College.
- c. Name and contact information for the clinician who will be submitting a medical letter.
- d. *For students who have been away for more than four terms:* Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)

4. **Medical Letter:** This should be sent directly from the clinician to the appropriate chief in Yale Health, either the Chief of Student Medicine (studentmed@yale.edu) or the Chief of Mental Health and Counseling (paul.hoffman@yale.edu). That letter ordinarily should include:

- a. The clinician's credentials and clinical setting;
- b. The nature of their work with the student, including the duration and frequency of their contact;
- c. Any observed progress in the student's recovery from the medical condition that led to the leave of absence;
- d. The clinician's assessment of the student's clinical status and their readiness to successfully resume academic and university life;
- e. The justification for their assessment of the student's readiness.

5. **Meeting:** Once the materials, including the medical letter, have been received, a meeting will be scheduled with the Chief of Student Health, the Chief of Mental Health and Counseling, or their official designee. The Chief of Student Health or the Chief of Mental Health and Counseling, or their official designee, will provide a recommendation to the Committee on Reinstatement as to whether the student is ready to successfully resume academic and university life.

6. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student accordingly.

- a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment (beyond the standard eight terms) as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for any additional terms.

- b. If a student is not cleared for return, the Committee will provide a written explanation to help the student understand the reasons behind their decision and will recommend steps the student might take to be more successful in future requests. It is rare for a student to need to make multiple requests, but there is no limit to the number of times a student may request a return.
7. **Appeals Process:** The vast majority of students are cleared to return on their initial request. Students who are not cleared to return may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than seven days from the date on which the student is notified of the decision.

WITHDRAWAL

There are four types of withdrawal: academic, disciplinary, financial, and personal.

ACADEMIC WITHDRAWAL

Students may be withdrawn for academic reasons on a variety of grounds.

See “Dismissal for Academic Reasons” in “Section I, Academic Penalties and Restrictions” in the Yale College Academic Regulations.

1. **Duration of Academic Withdrawals:** Students who are withdrawn for academic reasons must remain away for at least one fall term and one spring term, in either order, not including the term in which the withdrawal occurred. They may choose to stay away longer. They may also choose to apply for early reinstatement, which may be granted in rare circumstances.
 - a. *Note: Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete coursework will have their Student Share waived for the year in which they are reinstated.
2. **Campus Access:** Students on academic withdrawal may be present on Yale's campus as guests or visitors and must follow all relevant university regulations as such. Students living in on-campus housing will have a few days (usually 72 hours) to vacate their room after withdrawing. If invited to campus by other students, students on withdrawal must abide by the three-day limit on guests, as stipulated in the Yale College Housing Regulations. Students on academic withdrawal may usually participate in undergraduate activities and registered student organizations as guests but may not hold leadership positions or participate in university sponsored or funded international travel.

3. **Email and Remote Library Access:** Academically withdrawn students usually will retain email access for three years from the term of withdrawal. Remote library access is periodically reset to include only active students, dropping students who are withdrawn.
4. **Campus Employment:** Students on academic withdrawal may not hold student employment jobs but may work at Yale in other employment categories.
5. **Yale Summer Session Classes:** Students on an academic withdrawal are eligible to enroll in Yale Summer Session.
6. **Finances:** The financial consequences will depend on the timing of the withdrawal. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
7. **Disciplinary Violations:** A withdrawal does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
8. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is withdrawn.
9. **Health coverage:** Students on withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM AN ACADEMIC WITHDRAWAL

An academic withdrawal provides students with the opportunity both to address whatever circumstances prevented them from meeting their academic obligations and to repair certain academic deficiencies. The reinstatement process allows students to demonstrate that they are prepared to return to academic, co-curricular, and extra-curricular pursuits. *Note that students may be reinstated only once after an academic withdrawal; subsequent academic withdrawals are permanent.*

1. **Timing of Return:** Students wishing to return from an academic withdrawal may request to be reinstated when they feel prepared to reengage with their academic obligations. Students who are withdrawn for academic reasons are normally away for two full terms of enrollment. Requests to return early will be considered but are granted only in exceptional circumstances. There is no time limit on how long a student may remain withdrawn.
 - a. Returns must be at the start of a fall or spring term. (Enrollment in Yale Summer Session does not require reinstatement.)
 - b. Note: A student withdrawn from Yale College with pending disciplinary charges will not be eligible to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.

2. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. These deadlines are strictly enforced. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.
3. **Materials to be Submitted:**
 - a. Online Reinstatement Request form. Email reinstatement@yale.edu to request form.
 - b. A brief statement (approximately 500–750 words) describing the circumstances that led to the academic withdrawal, the activities pursued while away, and the student’s own sense of their readiness to return to Yale College.
 - c. For students who have been away for more than four terms: Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor’s degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
4. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student.
 - a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for these additional terms.
 - b. If a student is not cleared for return, a written explanation will be provided to help the student understand the reasons behind the Committee’s decision and recommended steps they might take to be more successful in future requests.
5. **Appeals Process:** Most students are cleared to return. If a student is not cleared, they may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than seven days from the date on which the student is notified of the decision. A student can also request reinstatement again in future terms.
6. **Academic Requirements Following Reinstatement:** Students who are reinstated from an academic withdrawal must pass all of their courses in their first two semesters back. They may withdraw from courses in progress (see “Withdrawal from Courses” in the Yale College Academic Regulations) but they may not fail any courses in which they remain enrolled.

DISCIPLINARY WITHDRAWAL (SUSPENSION)

Students who are found to have violated the undergraduate regulations or other university policies may be withdrawn by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct. See the Yale College Undergraduate Regulations.

Under limited circumstances, students may also be withdrawn by the Dean of Yale College or their delegate. See “Emergency and Administrative Suspensions” in the Yale College Undergraduate Regulations. These suspensions are usually followed by a disciplinary hearing but can be lifted earlier by action of the dean or a delegate of the dean, or by the disciplinary committee after a preliminary review.

1. **Duration of Disciplinary Withdrawal:** The length of a disciplinary withdrawal is set by the disciplinary committee. Students may choose to stay away longer.
 - a. *Note: Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session (if the term of suspension is complete) or at another accredited, four-year, Bachelor's degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete coursework will have their Student Share waived for the year in which they are reinstated.
2. **Coursework in Process:** Withdrawn students may not attend classes or submit additional coursework as of the date of withdrawal. Ordinarily, they are withdrawn from any courses in process. See “Withdrawal and Leave of Absence from Yale College” under “Withdrawal from Courses” in the Yale College Academic Regulations. In some cases, when students have already completed all or most of the coursework for a given class, they may receive a grade based on the work already completed. See “Work Incomplete at the End of Term” under “Completion of Coursework” in the Yale College Academic Regulations. If grades are not already submitted, it will be up to the student to determine if they wish to accept the grade for work completed.
3. **Campus Access:** Students withdrawn for disciplinary reasons are prohibited from being on campus without the advance written permission of their residential college dean, or the dean of student affairs. They may not participate in undergraduate activities or registered student organizations.
4. **Email and Remote Library Access:** Students withdrawn for disciplinary reasons lose access to their email and to library services.
5. **Campus Employment:** Students on disciplinary withdrawal may not hold student employment jobs but may work remotely for Yale in other employment categories.
6. **Yale Summer Session Classes:** Students on a disciplinary withdrawal may not enroll in YSS classes.
7. **Finances:** The financial consequences will depend on the timing of the withdrawal. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid

and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.

8. **Disciplinary Violations:** A disciplinary withdrawal does not preclude students from being charged with additional disciplinary violations of the Undergraduate Regulations in relevant circumstances.
9. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is disciplinarily withdrawn.
10. **Health coverage:** Students on withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM A DISCIPLINARY WITHDRAWAL

Students who wish to return from a disciplinary withdrawal must fulfill any requirements set by the disciplinary board.

1. **Timing of Return:** Students wishing to return from a disciplinary withdrawal may request to do so when they feel ready, once the period of the required withdrawal has passed. Requests to return early will not be considered. There is no time limit on how long a student may remain withdrawn.
 - a. Returns must be at the start of a fall or spring term.
 - b. Note: A student with additional pending disciplinary charges will not be eligible for Yale College reinstatement, re-enrollment, or a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.
2. **Reinstatement Requirement:** The disciplinary board may or may not require participation in the reinstatement process.
 - a. If the disciplinary board has not required a student to go through the reinstatement process, the student may return by notifying their residential college dean no later than the first day of the term in which they wish to return.
 - b. Students who are required to live on campus, or who wish to do so, must be in contact with their dean well in advance to make those arrangements. Students who are required to go through the reinstatement process should follow the instructions below.
3. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. These deadlines are strictly enforced. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.
4. **Materials to be submitted:**
 - a. Online Reinstatement Request form. Email reinstatement@yale.edu to request form.

- b. Brief statement (approximately 500-750 words) describing the circumstances that led to the disciplinary withdrawal, the activities pursued while away, and the student's own sense of their readiness to return to Yale College.
 - c. For students who have been away for more than four terms: Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
 - d. Documentation of having met any additional requirements imposed by the disciplinary board.
5. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student.
- a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for these additional terms.
 - b. If a student is not cleared for return, a written explanation will be provided to help the student understand the reasons behind the Committee's decision and recommended steps they might take to be more successful in future requests.
6. **Appeals Process:** Most students are cleared to return. If a student is not cleared, they may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than seven (7) days from the date on which the student is notified of the decision. A student can also request reinstatement again in future terms.

FINANCIAL WITHDRAWAL

University regulations require that all financial obligations to the University be paid as a condition of enrollment. Students who have not paid or made arrangements for payment of their term fees by the due date will be placed on financial withdrawal. See "Payment of Fees" under "Financial Services" in the Yale College Undergraduate Regulations. Students whose financial situations have changed should reach out to the Office of Financial Aid for a reassessment of their aid level.

- 1. **Duration of Financial Withdrawals:** The financial withdrawal is lifted as soon as the student's financial obligations have been settled.
- 2. **Campus Access:** Students on financial withdrawal may be present on Yale's campus as guests or visitors and must follow all relevant university regulations as such. Students living in on-campus housing will have a few days (usually 72 hours) to vacate their room after withdrawing. If invited to campus by other students, students on withdrawal must abide by the three-day limit on guests, as stipulated in the Yale College Housing Regulations. Students on financial withdrawal may usually participate in undergraduate activities and registered student organizations

as guests but may not hold leadership positions or participate in university sponsored or funded international travel.

3. **Email and Remote Library Access:** Financially withdrawn students usually will retain email access for three years from the term of withdrawal. Remote library access is periodically reset to include only active students, dropping students who are withdrawn.
4. **Campus Employment:** Students on financial withdrawal may not hold student employment jobs but may work at Yale in other employment categories.
5. **Yale Summer Session Classes:** Students on financial withdrawal may not enroll in YSS classes.
6. **Finances:** The financial consequences will depend on the timing of the withdrawal. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
7. **Disciplinary Violations:** A withdrawal does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
8. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is withdrawn.
9. **Health Coverage:** Students on financial withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM A FINANCIAL WITHDRAWAL

Students are automatically reinstated once their financial obligations have been settled.

PERSONAL WITHDRAWAL

Students may withdraw from Yale College for personal reasons at any time in the term.

1. **Petition for Personal Withdrawals:** Students should consult with their residential college dean, who can help them consider all options to determine whether a personal withdrawal is appropriate. In some cases, students considering a personal withdrawal may instead request a medical leave of absence or other accommodations. The consultation with the dean should include a discussion of the reinstatement requirements. If the student decides to pursue the personal withdrawal, they should submit a request in writing to their dean, who will forward it to the Committee on Honors and Academic Standing. Requests for personal withdrawals are ordinarily approved, but may be denied if the student is seeking to avoid an academic withdrawal.

2. **Automatic Recategorization into Personal Withdrawal Status:** Most personal withdrawals are requested by students but some are the result of inaction. Students in academic good standing who fail to register in a term will be withdrawn for personal reasons, as will students who do not return after reaching the limit of four terms of leaves of absence. (Medical leaves of absence do not have a term limit.)
3. **Coursework in Process:** Withdrawn students may not attend classes or submit additional coursework. Ordinarily, they are withdrawn from any courses in process. See “Withdrawal and Leave of Absence from Yale College” under “Withdrawal from Courses” in the Yale College Academic Regulations. In some cases, when students have already completed all or most of the coursework for a given class, they may receive a grade based on the work already completed. See “Work Incomplete at the End of Term” under “Completion of Coursework” in the Yale College Academic Regulations. If grades are not already submitted, it will be up to the student to determine if they wish to accept the grade for work completed.
4. **Duration of Personal Withdrawals:** Students on withdrawal for personal reasons usually must remain away for at least one fall term and one spring term, in either order, not including the term in which the withdrawal occurred. They may choose to stay away longer. They may also choose to reapply for early reinstatement, which may be granted in rare circumstances.
 - a. *Note: Coursework Requirement for Students Away for More than Four Terms:* Following an extended absence of any kind, students are required to prepare for their return by completing two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor’s degree-granting college or university, and to receive grades of A or B. These courses must be completed and graded before the start of the term in which the student plans to return, and no more than two years before that date. Students should email the Committee on Reinstatement (reinstatement@yale.edu) with the details of the courses they plan to take, including the institution, in order to verify that the courses will meet the requirements. Students facing availability issues and/or financial hardship may petition to take courses at a community college. Students on financial aid who are required to complete coursework will have their Student Share waived for the year in which they are reinstated.
5. **Campus Access:** Students on personal withdrawal may be present on Yale’s campus as guests or visitors and must follow all relevant university regulations as such. Students living in on-campus housing will have a few days (usually 72 hours) to vacate their room after withdrawing. If invited to campus by other students, students on withdrawal must abide by the three-day limit on guests, as stipulated in the Yale College Housing Regulations. Students on personal withdrawal may usually participate in undergraduate activities and registered student organizations as guests but may not hold leadership positions or participate in university sponsored or funded international travel.
6. **Email and Remote Library Access:** Personally withdrawn students usually will retain email access for three years from the term of withdrawal. Remote library

- access is periodically reset to include only active students, dropping students who are withdrawn.
7. **Campus Employment:** Students on personal withdrawal may not hold student employment jobs but may work at Yale in other employment categories.
 8. **Yale Summer Session Classes:** Students on a personal withdrawal are eligible to enroll in Yale Summer Session.
 9. **Finances:** The financial consequences will depend on the timing of the withdrawal. See “Rebates of Undergraduate Charges” under “Financial Services” in the Yale College Undergraduate Regulations. Students receiving financial aid should contact the Office of Undergraduate Financial Aid. The office will help answer questions students may have regarding if and how their withdrawal might affect financial aid and help identify any impacts to their financial obligations (including student loan information). Students who have received long-term loans will be sent information about loan repayment obligations, which in most cases begin six months after the last day of formal enrollment at Yale.
 10. **Disciplinary Violations:** A withdrawal does not preclude students from being charged with disciplinary violations of the Undergraduate Regulations in relevant circumstances.
 11. **Parental Notification:** Due to the change in enrollment status, residential college deans ordinarily notify parents or guardians when a student is withdrawn.
 12. **Health Coverage:** Students on personal withdrawal are not eligible for medical coverage or treatment through Yale Health.

RETURNING FROM A PERSONAL WITHDRAWAL

1. **Timing of Return:** Students wishing to return from a personal withdrawal may request to do so when they feel ready. Requests to return early will be considered but are granted only in exceptional circumstances. There is no time limit on how long a student may remain withdrawn.
 - a. Returns must be at the start of a fall or spring term. (Yale Summer Session classes do not require reinstatement.)
 - b. Note: A student withdrawn from Yale College with pending disciplinary charges will not be eligible for to return to Yale College or to receive a Yale College degree until the student's case has been adjudicated by the Yale College Executive Committee or the University-Wide Committee on Sexual Misconduct.
2. **Deadlines for Requesting Reinstatement:** To return for a fall term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on June 1. To return for a spring term, reinstatement requests and all accompanying materials must be submitted by 5 p.m. (EST) on November 1. These deadlines are strictly enforced. Students who have missed the deadline may send inquiries to reinstatement@yale.edu; permission for late requests is granted only in exceptional circumstances.
3. **Materials to be submitted:**
 - a. Online *Reinstatement Request* form. Email reinstatement@yale.edu to request form.

- b. Brief statement (approximately 500-750 words) describing the circumstances that led to the personal withdrawal, the activities pursued while away, and the student's own sense of their readiness to return to Yale College.
 - c. *For students who have been away for more than four terms:* Verification that the student has completed two term courses or their equivalent, either in Yale Summer Session or at another accredited, four-year, Bachelor's degree-granting college or university, with grades of A or B. Courses may be in process at the time of the request but must be completed and the grades received before the start of the term in which the student wishes to return. (See details above.)
4. **Individual Assessment of Request:** The Committee on Reinstatement will review all the information provided, make an individualized determination as to whether the student has met the criteria to be cleared for return, and notify the student.
- a. When the Committee on Reinstatement clears a student for return, they will assess the number of remaining course credits and allocate additional terms of enrollment as necessary. Reinstated students are not required to take these additional terms but are encouraged to do so in order to avoid taking an academic overload. Students are eligible to apply for financial aid for these additional terms.
 - b. If a student is not cleared for return, a written explanation will be provided to help the student understand the reasons behind the Committee's decision and recommended steps they might take to be more successful in future requests.
5. **Appeals Process:** Most students are cleared to return. If a student is not cleared, they may appeal the decision. The appeal must be made in writing to the Dean of Yale College no later than seven (7) days from the date on which the student is notified of the decision. A student can also request reinstatement again in future terms.

U.S. MILITARY SERVICE REINSTATEMENT POLICY

Students who interrupt their studies to perform U.S. military service are subject to a separate U.S. military leave reinstatement policy.

In the event that a student withdraws or takes a leave of absence from Yale College on or after August 14, 2008, in order to serve in the U.S. military, the student will be entitled to guaranteed reinstatement under the following conditions:

1. Students must have served in the U.S. Armed Forces for a period of more than thirty consecutive days.
2. Students must give advance written or verbal notice of such service to their residential college dean. In providing the advance notice students do not need to indicate whether they intend to return. This advance notice need not come directly from the student, but, rather, can be made by an appropriate officer of the U.S. Armed Forces or official of the U.S. Department of Defense. Notice is not required if precluded by military necessity. In all cases, this requirement of giving notice can be fulfilled at the time the student seeks reinstatement, by submitting an attestation that the student performed the service.
3. Students must not be away from the University to perform U.S. military service for a period exceeding five years (this includes all previous absences to perform U.S. military service but does not include any initial period of obligated service). If a

student's time away from the University to perform U.S. military service exceeds five years because the student is unable to obtain release orders through no fault of the student, or the student was ordered to or retained on active duty, such students should contact their residential college dean to determine if they remain eligible for guaranteed reinstatement.

4. Students must notify Yale within three years of the end of the U.S. military service of their intention to return. However, students who are hospitalized or recovering from an illness or injury incurred in or aggravated during the U.S. military service have up until two years after recovering from the illness or injury to notify Yale of their intent to return.
5. Students may not have received a dishonorable or bad conduct discharge or have been sentenced in a court-martial.

A student who meets all of these conditions will be reinstated for the following term unless the student requests, in writing, a later date of reinstatement. Any student who fails to meet one of these requirements may still be eligible for reinstatement under Yale's general reinstatement policy but is not guaranteed reinstatement. Upon returning to Yale, such students will resume their education without repeating completed course work for courses interrupted by U.S. military service. They will have the same enrolled status last held and will be in the same academic standing. For the first academic year in which such students return, they will be charged the tuition and fees that would have been assessed for the academic year in which they left the institution. Yale may charge up to the amount of tuition and fees that other students are assessed, however, if veterans' education benefits will cover the difference between the amounts currently charged other students and the amount charged for the academic year in which the student left. In the case of students who are not prepared to resume their studies with the same enrollment status and academic standing as when they left or who will not be able to complete the program of study, Yale will undertake reasonable efforts to help such students become prepared. If, after reasonable efforts, Yale determines that the student remains unprepared or will be unable to complete the program, or Yale determines that there are no reasonable efforts it can take, Yale may deny reinstatement.

REBATES OF UNDERGRADUATE CHARGES

For information on financial rebates on account of withdrawal from Yale College, consult the section "Financial Services," under "Regulations," in the Yale online publication Undergraduate Regulations.

K. Special Academic Programs

YEAR OR TERM ABROAD

In recognition of the value of international study, Yale College encourages students to spend an academic year or a term studying on an approved program abroad. In order to participate in a Year or Term Abroad, students must have secured both approval from the Yale College Committee on the Year or Term Abroad and admission from an accredited study abroad program.

Students may only enroll abroad as a senior if attending the Yale in London program. Students are not eligible to participate in a Year or Term Abroad when on disciplinary

probation or during a leave of absence. Students are limited to a maximum of two terms abroad for Yale graduation credit transfer and financial aid transfer.

A term abroad may be taken only during the second term of the sophomore year or either the first or second term of the junior year; students may combine any two of these three terms for a year abroad. Students must enroll in Yale courses for the final term of enrollment. Therefore, students may only enroll abroad as a second-term senior if attending the Yale in London program.* Students are not eligible to participate in a Year or Term Abroad when on disciplinary probation or during a leave of absence. Students are limited to a maximum of two terms abroad for Yale graduation credit transfer and financial aid transfer.

Students in any major may apply. Students must be in academic good standing at the start of an approved year or term abroad and be able to return to enrollment at Yale in academic good standing. See section D, Promotion and Good Standing, “Requirements for Academic Good Standing.” Students must have at least a B average at the time of their application. Applicants with a cumulative GPA below 3.0 are asked to submit an additional short essay that addresses their academic performance at Yale and outlines specific strategies for maintaining academic good standing abroad. The transcript should demonstrate progress toward raising the GPA in the terms before the intended year or term abroad. Applicants should ensure that they also meet the GPA requirement of their intended study abroad program(s).

Students seeking to study abroad in a country where the primary language is French, German, Italian, Portuguese, Russian, or Spanish are generally expected to take all of their courses in the language of the host country and should have enrolled in the relevant intermediate-level foreign language course (typically a course numbered 140 with an L4 designation) or have demonstrated the equivalent proficiency by examination. Students seeking to study abroad in a country where the primary language is Chinese, Japanese, or Korean should have enrolled in, at minimum, the relevant beginning-level foreign language course (typically a course numbered 120 with an L2 designation) or have demonstrated the equivalent proficiency by examination. Students seeking to study abroad in any other country where the primary language is not English are generally expected to take at least one course studying the language of the host country. Applicants may petition Yale Study Abroad for an exception to the language eligibility requirements if the program’s theme and core courses align with their major.

The credit application for a Year or Term Abroad is available on the Yale Study Abroad website of the Center for International and Professional Experience. A complete application includes all of the following: the application for credit, including a statement concerning the proposed course of study; a recommendation form from the student’s director(s) of undergraduate studies; and a recommendation form from the student’s residential college dean. Students on Yale financial aid must also submit a Year or Term Abroad Budget for Financial Aid application to Student Financial Services. Approval from Yale Study Abroad is contingent upon the Yale Travel Policy and the student’s acceptance into a program or university abroad. Students must complete additional pre-departure requirements before arrival in the host country.

Application deadlines are listed in the Yale College Calendar with Pertinent Deadlines and on the Study Abroad website.

Applications for programs or universities abroad are available directly from the sponsoring institutions. Information about specific programs and contact information for past Yale participants are available on the Yale Study Abroad website. Note that application deadlines differ from program to program and usually also differ from the Yale Study Abroad deadline. Students are responsible for meeting the deadlines set by the programs they seek to attend, whether those deadlines fall before or after the Yale Study Abroad deadline.

At a minimum, programs must involve full-time work at the university level and must be undertaken during the host program's regular academic year. Students should note that programs in the Southern Hemisphere are subject to a different academic calendar, one which may include the months of June, July, and August. Students should choose from the list of designated programs available on the Yale Study Abroad website. Students applying to enroll in programs not on the designated list must meet with a study abroad adviser to discuss the program and submit a petition application by the stated deadline. Yale Study Abroad evaluates programs primarily on the quality and structure of their academic offerings as well as the host country's eligibility under the Yale Travel Policy. Study abroad advisers are available to assist students in selecting an appropriate program.

1. **Course credit from a Year or Term Abroad** Students on a year abroad who complete a full program of study for the equivalent of two terms of enrollment at Yale may earn up to nine course credits. Students on a term abroad who complete a full program of study for the equivalent of one term of enrollment at Yale may earn up to four and a half course credits (with the exception of Cambridge or Oxford, for which students earn five credits for attending during Yale's spring term). What Yale Study Abroad considers a full program of study varies from program to program due to differences in academic credit systems. Students should consult with a study abroad adviser to ensure that they are enrolled in a full program abroad.
2. **Other course credit from outside Yale** Approved Year or Term Abroad enrollment is the only arrangement by which students may apply more than two outside credits toward the thirty-six course credits required for the bachelor's degree.* Students receiving credit for a year abroad may not apply any other credits from outside Yale toward the 36-course-credit requirement. Students receiving credit for a term abroad may apply up to two other course credits from outside Yale toward the 36-course-credit requirement. Because the maximum number of outside credits allowed is nine, students who have previously transferred one or two outside credits are normally eligible only for one term abroad. Students who wish to take a year abroad, but who are ineligible by virtue of having already transferred one or two outside credits may, with the exception noted below†, request that the University Registrar remove such credit from the transcript by petitioning the Committee on Honors and Academic Standing through their dean's office. If that petition is approved, the Registrar will remove the relevant outside course credit, but the course title will remain on the transcript. Accordingly, this course work may also continue to be applied toward major and distributional requirements.

3. **Evidence of course work** The approved study abroad program or university must submit to Yale Study Abroad such evidence of the student's achievement as transcripts or other official academic records.
4. **Grades** No credit will be awarded for a course in which the grade earned was lower than a C- or its equivalent in other grading scales. Nor will credit be awarded for a course taken on a Pass/Fail option, if the student had the choice of taking the course for a letter grade.
5. **Distributional requirements and major requirements** In addition to applying credits earned on a year or term abroad toward the 36-course-credit requirement, students may, with appropriate permissions, apply these course credits toward fulfillment of distributional requirements and some of the requirements of their major programs. Instructions on applying such credit toward the distributional requirements are available on the Fulfilling Requirements While Away page; petitions for credit toward major requirements should be directed to the relevant director of undergraduate studies. Students interested in fulfilling requirements through study abroad course work should be prepared to provide on their return to Yale copies of all course work and syllabi.
6. **Academic regulations** Because a year or term abroad counts as the equivalent of two or one terms of enrollment in Yale College, the academic regulations of Yale College pertain to enrollment abroad. Students must earn a sufficient number of credits abroad to remain in academic good standing. Failure to do so will result in academic warning or dismissal for academic reasons. See section I, Academic Penalties and Restrictions. Withdrawal from an approved program abroad has the same consequences as withdrawal from Yale College.
7. **Canceling a Year or Term Abroad** Students who have received permission to study abroad but later decide not to do so must notify Yale Study Abroad and their residential college dean in writing of their change of plans, and then either enroll as usual in Yale College or apply for a leave of absence before the deadline. See section J, Time Away and Return. In some cases, such students will have to withdraw from Yale College if the deadline for requesting a leave has passed, or if they have already taken two terms of leave, or if the deadline for enrolling in courses in Yale College has passed. Under no circumstances can a Year or Term Abroad be converted retroactively to a leave of absence. Similarly, a leave of absence cannot be converted retroactively to a Year or Term Abroad.
8. **Enrollment in Yale College after a Year or Term Abroad** After returning from a year or term abroad, students must enroll in Yale College for at least two terms. Students who have accelerated should speak with their residential college dean about the possible need to decelerate. See section R, Acceleration Policies.
9. **Financial aid** Students who have been approved to study abroad and who receive financial aid from Yale are eligible for aid while abroad. Information about financial aid support can be found on the Student Financial Services website.

* Study during the spring term at the Paul Mellon Centre for Studies in British Art in London (Yale in London) is equivalent to enrollment in Yale College and is not considered a Term Abroad. Application to the Yale in London program should be made directly to that office at the Yale Center for British Art. For details, see the British Studies program description.

† Students on promotion hold who employ outside course credits to repair a credit deficiency cannot subsequently have those credits removed from their transcript for any reason and are thus ineligible to take a year abroad.

LIMIT ON RESIDENTIAL COLLEGE SEMINARS

The number of Residential College Seminars is limited and the demand for them is great. A student may therefore take no more than four residential college seminars, and no more than one in a single term. Permission to exceed these limits must be secured in advance from the Yale College Committee on Honors and Academic Standing; such permission will be given only if the student can demonstrate that the integrity or coherence of the student's academic objectives would suffer without it.

COURSES IN YALE SUMMER SESSION

There is no limit on the number of on-campus or online courses in Yale Summer Session that a Yale College student may offer toward the requirements for the bachelor's degree. Yale Summer Session courses selected as Credit/D/Fail will count toward the four-course-credit limit on Credit/D/Fail courses for the bachelor's degree.

Attendance at Yale Summer Session does not constitute a term of enrollment in Yale College. Thus a student accelerating by one term by use of acceleration credits may not offer attendance at Yale Summer Session as one of the required seven terms of enrollment in Yale College.

A student accelerating by the early accumulation of thirty-six course credits all earned at Yale may count credits earned for a grade in Yale Summer Session toward such acceleration. Work completed under the Credit/D/Fail option cannot yield acceleration credit. See section R, Acceleration Policies, "Acceleration by the Early Accumulation of Thirty-Six Course Credits All Earned at Yale."

Courses outside a student's major, successfully completed in Yale Summer Session may, with the permission of the student's director of undergraduate studies, be counted toward the requirements of the student's major program. Summer Session courses within the student's major automatically count toward the major. Courses taken for a grade may also be counted toward fulfilling distributional requirements. Courses taken on a Credit/D/Fail basis may not be counted toward fulfilling distributional requirements for the junior year nor toward satisfaction of the distributional requirements for the bachelor's degree. There are no auditing privileges in Yale Summer Session.

All courses completed in Yale Summer Session will be entered on the Yale College record and those taken for a grade will be included in the calculation of the student's eligibility for General Honors and Distinction in the Major. Marks of CR are included in the calculations for some prizes, for Distinction in the Major, and for election to Phi Beta Kappa as non-A grades, but marks of CR are not included in the calculation for General Honors. For further information about Summer Session courses and transcripts, refer to the Yale Summer Session website.

During Summer 2020 and Summer 2021, credits earned in online courses did not count against the previous limit of four online course credits that could be applied to the Yale College degree. In addition, the previous limit of two online courses per summer were suspended.

YALE IN LONDON SUMMER PROGRAM

Courses in the summer program at the Paul Mellon Centre for Studies in British Art in London carry full Yale course credit, but enrollment in the Yale in London summer program does not constitute a term of enrollment in Yale College. (Attendance at the Yale College program at the Paul Mellon Centre in London during a spring term does count as a regular term of enrollment.) Thus a student accelerating by one term by use of acceleration credits may not offer attendance at the summer program at the Paul Mellon Centre in London as one of the required seven terms of enrollment in Yale College.

A student accelerating by the early accumulation of thirty-six course credits all earned at Yale may count credits earned in the summer program at the Paul Mellon Centre in London toward such acceleration. See section R, Acceleration Policies, “Acceleration by the Early Accumulation of Thirty-Six Course Credits All Earned at Yale.”

FIELDS & DIRECTED INDEPENDENT LANGUAGE STUDY

Through the Center for Language Study, students may apply to two special language programs: (1) Directed Independent Language Study (DILS), to study a language not taught in a department at Yale; and (2) the Fields program, for discipline-specific language study at advanced levels. For both programs, the selection process is competitive; students submit an application to the committee, which considers the strength of the applicant’s academic or professional reasons for their proposed course of study. Students are expected to be self-motivated and to spend significant time on their DILS or Fields study. During the program, students meet with an educated native speaker—a language partner—for two hours per week of conversation, while also studying the language on their own. In consultation with their language partner and the program manager, students devise their own plan of study and locate study materials, including conventional textbooks and web-based language materials. Students are tested at the end of their program using a nationally recognized oral proficiency examination. In Fields, students are also tested at entrance to confirm advanced proficiency. Both programs are open to undergraduates, graduate students, and professional school students. Language study through DILS and Fields is not eligible for course credit, does not satisfy the Yale College language requirement, does not appear on transcripts, and cannot be applied toward the Advanced Language Certificate. Interested students should apply at cls.yale.edu/dils and cls.yale.edu/fields.

AUDITING

Auditors are not permitted in courses taught in Yale College except for persons in one of the categories described below.

Category 1. Students enrolled full time in Yale College or in one of the graduate or professional schools of the University. In this case, students should contact the instructor directly for permission; with approval of the instructor, no form or additional permission is needed.

Category 2. Current members of the Yale faculty and emeritus faculty. In this case, the permission of the instructor is the only requirement; no form or additional permission is needed.

Category 3. Spouses of full-time Yale faculty members, or of emeritus faculty, or of students enrolled full time in the University. In these cases, the permission of both the instructor and the Director of Academic and Educational Affairs (joel.silverman@yale.edu) is required.

Category 4. Employees of the University and their spouses, in accordance with applicable personnel policies. In these cases, the permission of the instructor, the employee's supervisor, and the Director of Academic and Educational Affairs (joel.silverman@yale.edu) is required.

Category 5. Spouses of postdoctoral associates and fellows. In these cases, permission of both the instructor and the Director of Academic and Educational Affairs (joel.silverman@yale.edu) is required.

Category 6. Yale University alumni and their spouses. In these cases, permission of both the instructor and the Director of Academic and Educational Affairs (joel.silverman@yale.edu) is required, and an auditing fee will be charged.

Those in Categories 1 and 2 should contact the instructor of the course directly; only those in Categories 3, 4, 5, and 6 must complete an auditing form. The form for Categories 3, 4, and 5 (affiliate auditing) is available at the Yale Affiliate Auditing Program website; the form for Category 6 (alumni) is available at the Yale Alumni Auditing Program website.

No other persons are permitted to audit courses in Yale College, except for alumni eligible for the Alumni Auditing program. The Alumni Auditing program is administered separately from the general auditing program, and different rules may apply.

Yale NetIDs cannot be assigned to auditors. Alumni auditors pay a fee, which allows access to classroom sessions and to the Canvas class website, but only to course materials that are published to Canvas and available without Yale NetID access. Accordingly, many course resources (e.g., streaming video, library databases, "Zoo" computer labs, etc.) are not available to auditors. Before paying their auditing fee, and in order to make an informed decision about auditing a course, alumni auditors are encouraged to ask instructors whether such NetID-based resources will be used. More information is available at the Yale Alumni Auditing Program website.

All auditors are responsible for any additional course-based fees; those fees are paid directly to the sponsoring school, and not to the Yale College Auditing Program Office. Course fees can be found in the course description via Yale Course Search.

Persons auditing courses with limited laboratory or computer facilities must secure the explicit permission of the instructor to do so, and should understand that regularly enrolled students must at all times have priority in using such facilities. Computer or language laboratory facilities should be employed by auditors only during times when they are not in heavy demand, and in certain courses charges for computer use may be necessary. General access to the campus computing network may not be available to auditors.

It is the usual expectation that an auditor does not take tests or examinations or write papers for a course for evaluation by the instructor. Occasionally, however, an

auditor may wish to do such work and may request the instructor to evaluate it. If the instructor wishes to cooperate with the auditor in this way, the instructor does so on a voluntary basis and not as an obligation.

The University Registrar's Office does not keep a record of courses audited. It is not possible, therefore, for a student's transcript to show that a course has been audited, or for a transcript to be issued that records the auditing of a course.

The Yale College Auditing Program Office oversees only the auditing of undergraduate courses. To audit courses in Yale Graduate or Professional schools, contact those school registrars directly.

Persons interested in auditing an undergraduate course should review the Yale Alumni Auditing Program website or the Yale Affiliate Auditing Program website.

L. Special Academic Arrangements

COMBINED BACHELOR'S AND MASTER'S DEGREE PROGRAMS IN THE PROFESSIONAL SCHOOLS

Well-qualified students may be able to structure their undergraduate programs so as to become eligible for a master's degree in Environmental Management or Environmental Science, Global Affairs, Music, or Public Health after one additional year of graduate study at Yale. For more information see the respective program descriptions in Subjects of Instruction or on the respective websites.

COMPLETION OF DEGREE REQUIREMENTS AT THE END OF A FALL TERM

Students who at the end of a fall term complete the requirements for graduation may be of three kinds: (1) those who complete such requirements in eight terms of regular enrollment; (2) those who have accumulated thirty-six course credits or more, all earned at Yale, in fewer than eight terms of regular enrollment; and (3) students admitted by transfer to Yale College and students whose admission to Yale College was deferred until a spring term. Note that acceleration credits may not yield a completion of degree requirements at the end of a fall term; see section R, Acceleration Policies. The following rules apply to students of these three kinds.

1. **Notification by the student** Students must, by the last day of the add/drop period, in their final term of enrollment, complete a Petition to Complete Degree Requirements at the End of a Fall Term to notify the Committee on Honors and Academic Standing through their residential college dean's office that the fall term will be that student's last term of enrollment. Notification must include written certification from the student's director of undergraduate studies that the student will have completed all the requirements of the major program by the end of the fall term, and from the student's residential college dean that the student will have fulfilled the distributional requirements by that time. Failure to observe the deadline will result in the students being charged a fine of \$100.
2. **Award of degrees and diplomas** Students who complete degree requirements at the end of a fall term are awarded their degrees and their diplomas at Commencement at the conclusion of the spring term of that academic year and are considered to be members of the class that graduates at that Commencement. General Honors

and Distinction in the Major are also awarded at that time. If a student who completes degree requirements at the end of a fall term wishes to participate in the Commencement exercises held in the previous academic year, however, the student may do so with the permission of the residential college head and dean. Such might be the case, for example, for students who because of a leave of absence did not qualify for graduation with the class in Yale College with which they entered as a first-year. Such a student would not receive the degree or diploma until the May of the academic year in which degree requirements were completed.

3. **Health coverage** A student whose last term of enrollment is a fall term is eligible, upon application and payment of a fee, for continued coverage by Yale Health during the subsequent spring term, just as if the student were on leave of absence for that term. Such coverage extends to August 31. See section J, Time Away and Return.

COURSES IN THE YALE GRADUATE AND PROFESSIONAL SCHOOLS

When a course is open to undergraduate as well as either graduate or professional school students, a Yale College student may enroll under either number, but courses in the graduate and professional schools are not available on the Yale College Credit/D/Fail option; see section B, Grades, “Credit/D/Fail Option.”

A student may request to elect a graduate or professional school course, other than those designated independent study, by entering the course on the Course Schedule Selection Form. Students who wish to elect a professional school course must also complete an additional form downloaded from the University Registrar’s Office website. This latter form must be completed by the student, signed by the course instructor, and attached to a copy of the syllabus, and must also be signed by the appropriate agent of the dean or the registrar of the school in which the course is offered.

Requests should be made as early as possible in the term in which enrollment is sought and not later than three weeks after the first day of Yale College classes of the term. In recognition of the need to have a student’s schedule of courses finalized promptly, forms that are submitted after this date or that are incomplete will normally not be approved. Exceptions require action of the Committee on Honors and Academic Standing, in response to a petition from the student, and will be subject to a fine of at least \$50, with increases of \$5 daily according to lateness.

Note that systems for the award of course credit in the professional schools differ and that not all courses in these schools yield a full course credit in Yale College. Once all materials for a request to elect a professional school course are received by the Office of the University Registrar, a review will be made and the student will be informed as to whether the course will earn Yale College course credit and, if so, how much. Courses that earn no Yale College credit will normally not be entered on the Yale College transcript.

Note also that Yale College students are not permitted to enroll in independent study courses in the Graduate School of Arts and Sciences or in any of the professional schools of the University, unless already accepted into the program for the simultaneous

award of the bachelor's and master's degrees. Enrollment in graduate or professional school courses does not earn credit toward Yale College distributional requirements.

Options for Undergraduates	Yale College Courses	Graduate/Professional School Courses
Can I enroll under the Credit/D/Fail option?	Yes, see Section B, Credit/D/Fail Option	No
Can I take an independent study course?	Yes, see Section C, Normal Program of Study	No, unless already accepted into the simultaneous degree program; see Section L, Courses in the Yale Graduate and Professional Schools
Can I earn credit toward distributional requirements?	Yes, see Section A, Distributional Requirements	No, unless instructor has secured approval from Yale College in advance of the start of term; see Section A, Distributional Requirements, no. 8

A student may offer toward the 36-course-credit requirement for the bachelor's degree as many as four course credits earned in professional schools of the University. Courses taken in the Graduate School of Arts and Sciences are not included in this four-credit restriction.

The deadlines and regulations of Yale College are binding on all students, including candidates for the simultaneous award of the bachelor's and master's degrees, in regard to courses in which they are enrolled in the Graduate School of Arts and Sciences and the professional schools of the University. These include the deadlines and regulations pertaining to withdrawal from courses, late or postponed work, and work incomplete at the end of term. An exception in deadline may be made in a course offered in a professional school of the University in which the academic calendar differs from that of Yale College. A request for such an exception must be grounded in compelling academic reasons, and must be made in writing by the instructor of the course to the student's residential college dean in advance of the deadline in question. Instructors of courses in the Graduate School and in the professional schools of the University are expected to use the Yale College grading system when they report grades for undergraduates who have completed their courses.

CURRICULAR COMBINATIONS AND COURSE OVERLAP ALLOWANCES

Specific combinations of majors, two majors, multidisciplinary academic programs, skills-based and interdisciplinary certificates, and simultaneous degrees enable students to configure combinations that will best serve the purposes of a liberal arts education. By establishing limits comprised of three combinations of curricular options, students are better able to organize their interests into coherent sets of courses.

The following combinations of three are allowed without special permissions: one major and two certificates; one major, one multidisciplinary academic program, and

one certificate; two majors and one certificate or one multidisciplinary academic program; a simultaneous Bachelor's and Master's Degree (B.A./M.A. or B.S./M.S.) and one certificate or multidisciplinary academic program or a second major. Students may, in special circumstances, petition the Committee on Honors and Academic Standing for permission to earn an additional combination.

Additionally, no more than two course credits may overlap in the fulfillment of the requirements of a major, two majors, a multidisciplinary academic program, a certificate, or a simultaneous degree. Students may not apply the same course credit toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

DOUBLE CREDIT FOR A SINGLE-CREDIT COURSE

Two course credits for a course in Yale College normally carrying one course credit may be awarded to a student under the following conditions:

1. **Deadline** Permission must be requested by midterm, as published in the Yale College Calendar with Pertinent Deadlines.
2. **Petition and approvals** The student's petition must be approved by the instructor of the course, the director of undergraduate studies in the instructor's department, and the Committee on Honors and Academic Standing. The petition should include a detailed syllabus and an explanation of how the student's proposed work represents at least twice the normal expectations of the course.
3. **Distributional requirements** When a petition for double credit is approved for a course that fulfills a distributional requirement, the additional credit may not be applied toward the distributional requirement, although it may be applied toward the 36-course-credit requirement for graduation.
4. **Multiple courses** A student may make use of this arrangement rarely, and no more than once or twice.

SIMULTANEOUS AWARD OF THE BACHELOR'S AND MASTER'S DEGREES

Students of distinguished ability in a limited number of departments may undertake graduate work that will qualify them for the simultaneous award of the bachelor's and master's degrees at the end of their senior year. The simultaneous degree can be conferred only in a single department or program and only in departments or programs that confer both degrees. For example, a student may not complete a bachelor's degree in Economics and a master's degree in Political Science, nor may a student combine a bachelor's degree in a multi-departmental major (e.g., Ethics, Politics, and Economics) with a master's degree in one of its constituent departments. A student pursuing a simultaneous degree may, however, complete two separate undergraduate majors as long as one of the undergraduate majors is in the same department as the master's degree. Currently, the following departments offer the simultaneous degree option: American Studies; Biomedical Engineering; Chemistry; Classics; Computer Science; East Asian Studies; Earth and Planetary Sciences; English Language and Literature; French; History; History of Art; Italian; Linguistics; Mathematics; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; Music; Political Science; and Statistics and Data Science. For more information about this

program, contact the Director of Academic and Educational Affairs, Joel Silverman (joel.silverman@yale.edu).

1. **Eligibility** Applicants cannot be considered for admission unless by the end of their fifth term of enrollment they have achieved at least two-thirds A or A- grades in all of their course credits, as well as in all of the course credits directly relating to their major. Some participating departments have additional eligibility requirements, and students should consult the relevant director of undergraduate studies for this information. Because the Eli Whitney Students program is for enrollment for the degree of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) only, students in that program are ineligible for the simultaneous award of the bachelor's and master's degrees.

Prior to admission to the program, students enrolling in a course that carries both an undergraduate and a graduate number should do so under the graduate number if they wish to apply that course toward the graduate school requirements.

2. **Application** Students must apply to their department for admission to the program through their director of undergraduate studies and must complete the online application no later than the last day of classes in their fifth term of enrollment in Yale College. The proposal should provide evidence of eligibility, reasons for pursuing the simultaneous degree, and plans for completing the program requirements. If the department acts favorably on the student's application, it is forwarded with the formal approval of the director of undergraduate studies and of the director of graduate studies to the Director of Academic and Educational Affairs (joel.silverman@yale.edu) in the Yale College Dean's Office, where a joint committee of Yale College and the Graduate School acts upon the department's nomination and notifies the student of acceptance into the program.
3. **Program requirements** Specific requirements for the award of degrees will be determined by each department. Normally a student is expected to complete the requirements of the undergraduate major in addition to eight or more course credits in the Graduate School. For all students in the program, graduate work must not be entirely concentrated in the final two terms, and students in the program must take at least six term courses outside the major during their last four terms at Yale, and must take at least two of those six courses during their last two terms.

Students may not enroll in Yale College for more than eight terms in order to qualify for the simultaneous award of both degrees. It is possible to earn both degrees in fewer than eight terms, but not by the use of acceleration credits. Upon acceptance into the program, a student who has accelerated by the use of acceleration credits will automatically be decelerated, and may not, so long as the student remains in the simultaneous degree program, subsequently employ the credits to accelerate. While some participating departments may allow up to two overlapping term courses to apply to the requirements of both the major and the master's degree, and while students are not prohibited from additionally completing a second major, students may not apply two overlapping term courses toward the completion of both the simultaneous degree and toward completion of the two majors; only one such overlap is permitted.

4. **Requirements for the master's degree** To qualify for the master's degree, students must complete eight term course credits in the Graduate School with grades of A or

A- in at least two term courses (or in one year course) and with a B average in the remaining ones. Students in those departments with a language requirement for the Ph.D. degree will be required to demonstrate proficiency in one of the specified languages.

5. **Approval of course schedules** Following notification that they have been accepted into the Program for the Simultaneous Award of the Bachelor's and Master's Degrees, students should have their course schedules approved each term both by the director of undergraduate studies and by the director of graduate studies.
6. **Independent Study** Students who have been admitted into the program may enroll in independent study courses in the graduate or professional school if the director of graduate studies verifies that such courses are applicable to the degree requirements for the master's degree.

SPECIAL TERM COURSES

With the approval of the Yale College Committee on Honors and Academic Standing, a student may arrange with a member of the faculty to take a Special Term Course, or individual tutorial, for credit toward the bachelor's degree, provided that certain requirements are met. First, the material of the proposed course must be appropriate to the qualifications of the student and it must be otherwise unavailable in the Yale University curriculum. If the subject can be pursued through independent study in an existing tutorial course in a department (e.g., AMST 471 or CGSC 473), the student must apply for enrollment in that course through the director of undergraduate studies. Second, the instructor of the proposed special course must hold a teaching appointment in the University. Third, the student must describe in detail the nature of the proposed course work and submit a syllabus.

Requests for Special Term Courses should be made to the Committee on Honors and Academic Standing, 25 SSS, on forms available from the residential college deans. The application form must be completed by the student and then approved and signed by the proposed instructor and the director of undergraduate studies of the instructor's department. A request for a Special Term Course should be made during the term immediately preceding the term during which the course is actually to be taken. An application will not be accepted by the committee after the second week of the term for which a course is proposed. It is expected that Special Term Courses will be taken for a letter grade. A student may not apply credit earned in a Special Term Course toward satisfaction of any of the distributional requirements.

TWO MAJORS

A student must petition the Committee on Honors and Academic Standing for permission to complete the requirements of two major programs. The Petition to Complete the Requirements of Two Majors is available on the University Registrar's Forms & Petitions site. A student contemplating the completion of two majors should bear in mind that doing so will almost invariably limit the opportunities for a wider distribution of studies over different subjects.

Each major must be completed independently of the other, with no more than two term courses overlapping. Prerequisites in either major are not considered to be overlapping courses. Other than such prerequisites, all courses taken in a major – including those taken in excess of the minimum requirements of the major – are counted in the

consideration of overlapping courses unless such courses are in excess of the minimum requirements for both majors. Overlapping courses may not include the senior essay or senior project, unless the essay or project is unusually substantial and represents at least the equivalent of the minimum essay or project requirement of the one major in addition to the minimum essay or project requirement of the other major. If a single senior essay or project is approved for the two majors, no additional overlap in course credits is permitted.

It is not possible to offer as two majors a combined major with one of its component majors. For example, a major in Economics and Mathematics cannot be joined with a second major in either Economics or Mathematics. Similarly, a student completing a major that permits the inclusion of a concentration of courses from another major or program cannot also major in that second major or program. For example, a major in Sociology with Psychology cannot have a second major in Psychology. A Special Divisional Major may not be offered as one of two majors.

A petition for two majors should show clearly how the requirements for each of the two programs will be met, and petitioners should consult the appropriate directors of undergraduate studies. The completion of two majors does not result in the award of two degrees; a student who completes a major that leads to the award of the B.A. degree and another major that leads to the award of the B.S. degree may choose the degree to be conferred. A petition to complete the requirements of two majors should be made only after the student's plans are definite, but no later than the due date for course schedules in the student's final term of enrollment. Petitions submitted after this deadline will be accepted only by exceptional action of the Committee on Honors and Academic Standing and will be fined \$50.

A student may not petition for permission to complete the requirements of more than two major programs.

M. Transfer Students

The following regulations apply to students admitted to Yale College by transfer from other colleges and universities:

1. **Degree requirements** In order to graduate from Yale College, transfer students must fulfill all the requirements for the bachelor's degree. They must thus earn a total of the equivalent of at least thirty-six course credits, that total consisting of the number of credits awarded for their work at their previous institutions combined with the number of course credits subsequently earned at Yale. They must also complete the requirements of a major program in Yale College and fulfill the distributional requirements for the bachelor's degree. Once accepted for admission, transfer students should consult with the director of the transfer program in order to ascertain their status with regard to the distributional requirements, especially the language requirement.
2. **Terms of enrollment at Yale** Transfer students are expected to enroll in Yale College for the number of terms designated at the time of the final credit evaluation made of their work at previous institutions. Under no circumstances may a transfer student complete fewer than four terms of enrollment in Yale College or earn fewer

than eighteen course credits at Yale. Transfer students are not eligible for the award of acceleration credit or for acceleration by use of acceleration credits.

3. **Transfer of credits** A preliminary evaluation of transferable credits is made at the time of the student's admission. Final determination of transfer credits is completed when all official transcripts from a student's previous institutions have been received.
4. **Additional terms at Yale** Students who must remain at Yale beyond the terms designated in the final determination of transfer credits must petition the Committee on Honors and Academic Standing for permission to do so. Such a petition will be considered only if it is impossible for the student to complete the requirements for the bachelor's degree in the designated number of terms. See section A, Requirements for the B.A. or B.S. Degree, "Eight Terms of Enrollment." A student given permission to enroll at Yale for an additional term, if the term represents more than the equivalent of eight terms of enrollment at the college level, is eligible for scholarship assistance from Yale for the additional term.
5. **Transcripts** A transfer student's Yale transcript indicates the institutions from which the student transferred to Yale, the number of course credits earned there, and the titles of courses taken. It does not list the grades earned at the transfer student's previous colleges or universities. A transfer student who needs a record of studies completed before admission to Yale must secure a transcript from the previous institutions.
6. **Course credit from outside Yale** Transfer students may receive up to two course credits for work completed outside Yale after matriculation and may receive credit for a Year or Term Abroad according to the guidelines of section Q, Credit from Other Universities, and section L, Special Academic Arrangements, "Year or Term Abroad," provided that they enroll in Yale College for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.
7. **Distributional requirements** Transfer students are not bound by the distributional requirements for the first year, sophomore year, or junior year, but they must fulfill the distributional requirements for the bachelor's degree. See paragraph 1 above.
8. **Credit/D/Fail** Transfer students have up to four opportunities to convert a course credit to the Credit/D/Fail option.
9. **Attendance at Yale before enrollment** Once a student has been accepted for admission as a transfer student, the student may not attend Yale as an Eli Whitney student or a non-degree student before his or her first term of enrollment at Yale.

N. Eli Whitney Students Program

The Eli Whitney Students program is designed to meet the needs of students who may not be able to attend college full-time by allowing nonresident students to enroll full-time or part-time in Yale College. Students are eligible to enroll in the program if they do not already hold a bachelor's degree and if they have a five-year gap at least in their post-secondary school education or have been out of high school for five or more years by the time of their matriculation at Yale.

The Eli Whitney Students program is for enrollment for the degree of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) only; students in the program are therefore ineligible for the simultaneous award of the bachelor's and master's degrees.

1. **Academic requirements** The Eli Whitney Students program normally is to be completed in a period not exceeding seven years from initial enrollment. In any calendar year, an Eli Whitney student must have completed three course credits to remain in academic good standing. Eli Whitney students are required to meet all of the academic obligations of any course in which they enroll and all requirements of their degree program.
2. **Academic Warning, and dismissal for academic reasons** Academic Warning is an indication that a student's scholastic record is unsatisfactory. Academic Warning will be automatic for Eli Whitney students who do not complete three course credits in any calendar year, as well as in the following cases: (a) failure in one term to earn at least one course credit; (b) a record that shows two grades of F in one term; (c) in two successive terms, a record that shows a grade of F for any course. A record that shows a grade of F for an Eli Whitney student who is on Academic Warning in that term will result in that student's dismissal for academic reasons.
3. **Degree requirements** To qualify for the bachelor's degree through the Eli Whitney Students program, Eli Whitney students must fulfill all the requirements for the bachelor's degree. They must thus earn a total of the equivalent of at least thirty-six course credits. Eli Whitney students must enroll in Yale College for at least four terms, earning by attendance in the Eli Whitney Students program at least eighteen of the required thirty-six credits. As many as eighteen course credits earned at another college or university or in the Non-degree Students program at Yale may be transferred toward the requirements for the bachelor's degree. Such transfer credit will be awarded for academic courses that were taken at an accredited institution and that were similar in content to Yale courses. Grades of A or B are expected, and no more than one-quarter of courses accepted for transfer toward the requirements for the degree may have grades of C. Eli Whitney students also must complete the requirements of a major program in Yale College and fulfill the distributional requirements for the bachelor's degree. See Majors in Yale College and The Undergraduate Curriculum under Major Programs.
4. **Distributional requirements** Eli Whitney students are not bound by the distributional requirements for the first year, sophomore year, or junior year, but must nonetheless fulfill the distributional requirements for the bachelor's degree. Once accepted for admission, Eli Whitney students should consult with the director of the Eli Whitney Students program in order to ascertain their status with regard to the distributional requirements, especially the language requirement.
5. **Credit/D/Fail** Eli Whitney students have up to four opportunities to convert a course to the Credit/D/Fail option. As many as two credits may be elected under the Credit/D/Fail option in a term. Thus, in an academic year, a student may earn as many as four credits on the Credit/D/Fail option. Because Eli Whitney students are permitted to enroll in as few as three course credits in a calendar year, and thus sometimes enroll in only one course credit in a term, special limits apply. An Eli Whitney student enrolled in four or more course credits in a term may elect up to two course credits that term under the Credit/D/Fail option; an Eli Whitney

- student enrolled in three or 3.5 course credits in a term may elect up to 1.5 course credits that term under the Credit/D/Fail option; and an Eli Whitney student enrolled in two or 2.5 course credits in a term may elect up to one course credit that term under the Credit/D/Fail option. An Eli Whitney student enrolled in fewer than two course credits in a term may not elect any course credits that term under the Credit/D/Fail option.
6. **Registration and enrollment** Eli Whitney students enroll in courses as described in section E, Course Enrollment, and according to the deadline stipulated in the Yale College Calendar with Pertinent Deadlines. Students are permitted to enroll for a full course load, up to 5.5 course credits each term, with the possibility of a greater term load if appropriate permissions are secured. See section C, Course Credits and Course Loads, “Normal Program of Study.” Eli Whitney students are eligible to enroll in Directed Studies or First-Year Seminars only in certain limited conditions. Students should consult with the director of the Eli Whitney Students program in order to ascertain their eligibility
 7. **Tuition and financial aid** Tuition for the 2023–2024 academic year for Eli Whitney students is \$7,150 per course credit, and Eli Whitney students are not to be charged in excess of the maximum full tuition rate of \$32,350 per term. Yale employees are entitled to a tuition reduction as determined by the Office of Human Resources. Tuition must be paid in full to the Office of Student Financial Services before registration. Eli Whitney students are eligible to apply for financial aid.
 8. **Facilities and services** Eli Whitney students are entitled to use the library system together with the other facilities that are required for the courses in which they are enrolled, such as laboratories, computers, and the like. They are also eligible for services through the Center for International and Professional Experience. Eli Whitney students are entitled to purchase gymnasium memberships and Yale Health coverage. Students in the Eli Whitney program are not eligible for undergraduate housing and they may not serve as first-year counselors.
 9. **Regulations** Eli Whitney students are governed by the academic regulations of Yale College, wherever appropriate, and by the rules contained in the Yale online publication Undergraduate Regulations. In disciplinary matters, Eli Whitney students are subject to the jurisdiction of the Yale College Executive Committee.
 10. **Leave of absence and withdrawal** See section J, Time Away and Return. All regular deadlines and policies apply.
 11. **Transcripts** An Eli Whitney student’s Yale transcript indicates the institutions from which the student transferred to Yale, the number of course credits earned there, and the titles of courses taken. It does not list grades earned at the student’s previous colleges or universities. An Eli Whitney student who needs a record of studies completed before admission to Yale must secure a transcript from the previous institutions.
 12. **Course credit from outside Yale** Students enrolled in the Eli Whitney Students program may receive up to two course credits for work completed outside Yale after matriculation, according to the guidelines of section Q, Credit from Other Universities, provided that they enroll in Yale College for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.
 13. **Year or Term Abroad** With the approval of the director of the Eli Whitney Students program and the Committee on the Year or Term Abroad, students

enrolled in the Eli Whitney Students program may undertake study outside the United States for a Year or Term Abroad. An Eli Whitney student must comply with all deadlines and requirements of the Committee on the Year or Term Abroad. See section L, Special Academic Arrangements, “Year or Term Abroad.” To be eligible to apply, an Eli Whitney student must have accumulated, before enrolling abroad, at least twelve course credits but no more than twenty-two course credits toward the 36-course-credit requirement. Study abroad must involve full-time work at the university level. Eli Whitney students must enroll for at least two terms in Yale College after their return from study abroad.

14. **Yale students** No person who was ever a regular student in Yale College may enter the Eli Whitney Students program before the lapse of five years after withdrawing from Yale College. A person who in the past has withdrawn from Yale College without graduating and who wishes to return to Yale as a candidate for the bachelor’s degree as an Eli Whitney student must make application to the Eli Whitney Students program and fulfill all of its requirements for the bachelor’s degree, including the requirement that at least eighteen course credits must be earned while the student is enrolled in the Eli Whitney Students program. Once a former Yale College student has entered the Eli Whitney Students program, that student may pursue the bachelor’s degree only through the Eli Whitney Students program.

Further information and application forms for the Eli Whitney Students program are available from the Undergraduate Admissions Office’s Eli Whitney Students Program website.

O. Non-degree Students Program

The Non-degree Students program is designed to meet the needs of students with specific and defined educational goals, which may include personal or professional enrichment, exploration of new fields, or preparation for career changes. Normally, students are admitted for a period of one to two terms; students wishing to extend their enrollment must reapply through the Admissions Office.

The Non-degree Students program offers nonresident students who are unable to attend college full time the opportunity to enroll in Yale College courses for credit. The Non-degree Students program is open to graduates of Yale College, and is also open to academically qualified persons who have attended other colleges and universities or who have not continued their education beyond high school. Like all Yale College students, students in this program are required to comply with the academic regulations. Students not matriculated at Yale but participating in one of Yale’s Reserve Officers Training Corps (ROTC) programs under a cross-town arrangement are registered as non-degree students. As such, they are subject to Yale College undergraduate regulations as a condition of their participation in Yale’s ROTC program.

Non-degree students may enroll in from one to five course credits in any academic term. Non-degree students may not take more than a total of eighteen course credits in the Non-degree Students program.

1. **Academic requirements** Non-degree students are required to meet all of the academic obligations of any course in which they enroll. At the end of a term, the record of any non-degree student who does not have at least a C average for that term will be reviewed and that student may not be permitted to enroll in a subsequent term. To remain in academic good standing, a student is furthermore expected to complete at least one course per term. Withdrawal from all courses in any given term may jeopardize good standing and enrollment in a subsequent term. Students who plan not to enroll in courses in any given term must apply for a leave of absence on or before the fifteenth day of the term in question. A leave of absence may be granted for no more than two terms. Any student who does not enroll in courses in a term and does not apply for a leave of absence may be removed from the program.
2. **Enrollment and registration** Non-degree enrollment may begin in either the fall or the spring term. All non-degree students register for courses with the Director of Academic and Educational Affairs. In general, admission to limited-enrollment courses is not available to non-degree students. Auditing is not permitted in the Non-degree Students program. Non-degree students are not eligible for enrollment in individual tutorial courses; nor are they eligible, while in the Non-degree Students program, for enrollment in courses in the graduate or the professional schools. Those interested in enrolling in such courses should apply directly to the Graduate School of Arts and Sciences or to the particular professional school in whose courses they wish to enroll.
3. **Credit/D/Fail option** Non-degree students who wish to elect a course under the Credit/D/Fail option must make a compelling case for that election in a petition to the Director of Academic and Educational Affairs at least one week prior to the last day of classes in that term. Non-degree students may take no more than one course in a term using the Credit/D/Fail option, and must be enrolled in at least one other course worth a minimum of one course credit during the same term. A maximum of two courses may be taken Credit/D/Fail during a student's time in the Non-degree Students program.
4. **Tuition** The tuition for non-degree students during 2023-2024 is \$6,875 per course credit. Yale employees and their spouses are entitled to a tuition reduction; questions about this employee benefit should be directed to the Office of Human Resources, 203-432-5552. Tuition must be paid in full to the Office of Student Financial Services before registration. Yale provides no financial assistance for non-degree students. Students withdrawing from a course may be eligible for a refund of all or a portion of the tuition fees, in accordance with the tuition refund policy: (1) a student who drops a course for any reason on or before the last day of the add/drop period will be refunded the tuition fees paid for that course; (2) a student who drops a course for any reason after the add/drop period but on or before the day of midterm will be refunded one-half the tuition paid for that course; (3) a student who drops a course after midterm will not be refunded any portion of the tuition. Fees for late submission of course schedules apply as outlined in section E, Course Enrollment. Late tuition payments will be accepted no later than the course schedule deadline date (see the *Yale College Calendar with Pertinent Deadlines*). Any student who has not completed payment in full for courses by this deadline will not be permitted to enroll for that term.

5. **Facilities and services** Non-degree students are entitled to use the library system and other facilities that are required for the courses in which they are enrolled, such as laboratories, computers, and the like. For a fee, they are entitled to purchase gymnasium memberships and Yale Health coverage. Non-degree students are not eligible for undergraduate housing or dining hall meal plans, and they may not serve as first-year counselors.
6. **Regulations** Non-degree students are governed by the academic regulations of Yale College and by the rules contained in the Yale online publication Undergraduate Regulations. In disciplinary matters, non-degree students are subject to the jurisdiction of the Yale College Executive Committee.
7. **Yale students** Students who have withdrawn from Yale College or who did not complete degree requirements within the number of terms of enrollment for which they were admitted may not return to Yale College to complete degree requirements as non-degree students. This rule includes former Yale College students who are currently employees of the University. Students on leave of absence may not be admitted to the Non-degree Students program.
8. **Yale graduates** Graduates of Yale College who have received the bachelor's degree after eight terms of regular enrollment are eligible to apply as non-degree students either on a full-time or on a part-time basis. But Yale College graduates who have taken degrees after fewer than eight terms of regular enrollment are eligible to apply as non-degree students only on a full-time basis until they have completed the equivalent of eight terms of enrollment in Yale College. Thus a student who took a seven-term degree must be a full-time student for the first term in which he or she is a non-degree student, but may be a part-time non-degree student in a subsequent term. For example, a student who has completed degree requirements at the end of a fall term after eight terms of regular enrollment is eligible to apply as a non-degree student either on a full-time basis or on a part-time basis during the subsequent spring term, but a student who has completed degree requirements at the end of a fall term after seven terms of regular enrollment is eligible to apply as a non-degree student during the subsequent spring term only on a full-time basis. Please note that any courses taken by a former Yale College student in the Non-degree Students program will appear on the undergraduate transcript.
9. **Transfer students** Students who have been accepted for admission as transfer students may not attend Yale as non-degree students before their first term of enrollment at Yale.
10. **Yale employees** Yale employees require permission of their supervisors to apply.

Further information and application forms are available at the Non-degree Students Program website.

P. Visiting International Student Program

The Yale Visiting International Student Program (Y-VISP) invites selected undergraduate students from Y-VISP partner institutions to pursue full-time study in Yale College during one term or one academic year. Y-VISP students maintain a full course load and are fully integrated members of Yale College life inside and outside of the classroom. Y-VISP is managed by the program's associate director and the Y-

VISP Steering Committee. Additional information is available on the Yale Visiting International Student Program website.

Q. Credit from Other Universities

A student may not employ course credits earned at another college or university to reduce the expected number of terms of enrollment in Yale College. Under the conditions described below, a student may apply as many as two course credits earned at another college, university, or academic program toward the 36 course credit requirement for graduation from Yale College. Before undertaking such outside study, the student should consult the residential college dean about both the institution to be attended and the course to be taken there.

1. **Approval of credit** In order for credit to be given for courses taken elsewhere, all of the following conditions must be met:
 - a. The Director of Academic and Educational Affairs must approve the award of credit at Yale for the course.
 - b. A student who has studied at an American university, or abroad on a program sponsored by an American university, must provide the office of the residential college dean with an official transcript of the work completed. A student who has enrolled in a program that is not sponsored by an American university should supply an official transcript if the sponsoring institution issues transcripts; if it does not, then the student must furnish an official certificate of enrollment, showing if possible the course or courses completed.
 - c. Students seeking outside credit should be prepared to furnish a copy of the course syllabus, as well as essays and examinations written in the course. In some cases, a letter from the instructor of the course may be required, or the student may be asked to pass an examination on the material of the course. Such information may be particularly necessary in the case of study at a foreign university.
 - d. Study undertaken in the United States must be at a four-year accredited institution that grants a bachelor's degree in the arts and sciences. Extension schools usually do not meet these requirements, and so courses taken at extension schools normally do not qualify for credit. Foreign study must be completed at a university or other approved institution. Credit may be awarded only for work done while a student was officially enrolled at such an institution, and cannot be given for any work completed independently of such formal enrollment.
 - e. A grade of A or B is expected; a grade of C is acceptable. Credit cannot be given for a mark of Credit on a Credit/D/Fail option, or for a grade of Pass on a Pass/Fail option, if the student had the choice of taking the course for a letter grade.
 - f. In order for credit to be given for a course completed at another college or university, the course must carry a value of at least three semester credit hours; if the course is taken at an institution on the quarter system, it must carry a value of at least four-and-one-half quarter units.
 - g. In order for credit to be given for a course completed at another college or university, the number of contact hours for the course must equal or exceed the number of contact hours for an equivalent course offered in Yale College during

the fall or spring term, and the length of term (from the first to the last day of classes) must be at least four consecutive weeks.

2. **Year or Term Abroad** Yale Study Abroad oversees credit transfer from approved Year or Term Abroad programs. Credits earned on a Year or Term Abroad count toward the 36 course credit graduation requirement and appear on the Yale transcript with the mark TR (“transfer credit”). Courses in Yale Summer Session are not considered outside courses, and there is no limit on the number of such courses that a student may offer toward the requirements of the bachelor’s degree; see section K, Special Academic Programs, “Courses in Yale Summer Session.” Similarly, courses taken in the Yale College program at the Paul Mellon Centre in London are Yale courses and do not count as outside credit. Students who wish to receive credit for summer study abroad with outside programs must meet the eligibility requirements and apply for approval through Yale Study Abroad. No more than two credits earned at another institution may be applied toward the 36 course credit graduation requirement. While Year or Term Abroad courses are not bound by this limit, any graduation credit earned through approved non-Yale summer abroad programs count toward this two course credit limit. For more information, see section K, Special Academic Programs, “Year or Term Abroad.”
3. **Non-Yale Summer Abroad** Students who wish to receive credit for summer study abroad with non-Yale programs must apply for approval through Yale Study Abroad. Students should note that the application process for Yale Summer Session Programs Abroad differs and often has an earlier deadline than the Non-Yale Summer Abroad credit application. Information about the application process, including a list of designated programs, is available on the Yale Study Abroad website. Students receiving credit for summer study abroad may also apply such credit toward the distributional requirements for the bachelor’s degree or toward a requirement of the student’s major program (see paragraph 7, “Distributional requirements” and paragraph 9, “Major requirements”).
4. **Residential College Seminars** Residential College Seminars are, by definition, courses that extend beyond the Yale College curriculum. They are not used as comparables for credit for outside courses, whether in Year or Term Abroad or for other considerations for outside credit.
5. **Work done while in secondary school** Course credit or distributional credit cannot be given for any college or university course taken while the student was still enrolled in secondary school. Work done after graduation from secondary school but before matriculation at Yale may be accepted on recommendation from the Director of Academic and Educational Affairs. As a regular exception to this rule, students who earned credits while still enrolled in secondary school as members of the Non-degree Students program in Yale College or as students in Yale Summer Session may apply such credits toward the requirements of the bachelor’s degree.
6. **Limit of two course credits** Credit cannot be given for more than two course credits earned at another institution. An exception of one additional course credit may be made only by action of the Committee on Honors and Academic Standing upon the student’s petition, normally after the final term of enrollment, or in cases where a student is thereby fulfilling the language requirement in a language not offered at Yale (see paragraph 8, “The language requirement and courses taken

- elsewhere,” below). In no case may a student bring in more than three outside graduation course credits, with the exception of an approved Year or Term Abroad.
7. **Distributional requirements** With permission, course credit earned at another college or university may be applied toward the distributional requirements for the bachelor’s degree and to those for the sophomore and junior years whether or not it is counted toward the 36-course-credit requirement for graduation; instructions on applying such credit toward the distributional requirements are available on the Fulfilling Requirements While Away on the Yale Study Abroad website. Credit from outside Yale may not be applied toward the distributional requirements for the first year. Yale also does not award credit toward distributional requirements for courses completed at another college or university before the student graduated from secondary school, nor for online courses completed outside Yale, except in cases where a student is fulfilling the foreign language requirement in a language not offered at Yale (see paragraph 13, “Online courses,” below).
 8. **The language requirement and courses taken elsewhere** Students who have taken a course in a language at another institution, either in the United States or through a program abroad, and who wish to offer that course toward fulfillment of the language distributional requirement must secure the approval of the relevant director of undergraduate studies. While the approval process varies across departments, in no case can it be completed until an official transcript of the work has been received and reviewed by the department. Typically, an additional assessment of the student’s work will be necessary, especially with respect to the level (e.g., L3 through L5) that has been achieved by the outside study. Such assessment might include a written or oral examination or both, a review of the course syllabus and written assignments, or other methods of evaluation. Some departments maintain a list of programs that have been previously evaluated, in which case the approval process is often simplified. Students are therefore strongly encouraged to consult the relevant department before undertaking language study elsewhere. For languages not offered at Yale, students should seek guidance from the Center for Language Study about the possibility of fulfilling the language requirement in that language through outside credit.
 9. **Major requirements** At the discretion of the director of undergraduate studies in a student’s major, work done at another institution may be counted as fulfilling a requirement of the student’s major program. This may be done whether or not a course is credited toward the 36-course-credit requirement.
 10. **Transfer students and Eli Whitney Program students** Transfer students and students in the Eli Whitney Program may receive up to two course credits for work completed outside Yale after matriculation and may receive credit for a Year or Term Abroad according to the guidelines of section M, Transfer Students, section N, Eli Whitney Students Program, and section K, Special Academic Programs, “Year or Term Abroad,” provided that they enroll in Yale College for at least four terms, earning by attendance at Yale a minimum of eighteen course credits.
 11. **Internships, field studies, and the like** Course credit cannot be given for such programs as internships, field studies, or workshops, but these experiences may be included as a component of a full, regular, academic course of instruction, certified by a transcript from an accredited four-year institution granting a bachelor’s degree.

12. **Independent study** Course credit cannot be given for independent study courses taken at another university except for independent study courses taken as part of a designated study abroad program with the approval of Yale Study Abroad.
13. **Online courses** Online courses from other universities may be eligible for Yale credit under limited conditions. The course must include regular, synchronous interaction with the instructor, as well as regular feedback. For online courses offered during the summer, such courses may not be comparable to a course offered online through Yale Summer Session. Online courses may not be used by students to repair a deficiency for promotion (see section I, Academic Penalties and Restrictions, “Makeup of Course Deficiencies for Promotion or Academic Good Standing”), and may not be applied toward a distributional requirement, with the exception that online courses in a language not offered at Yale may be applied toward the language requirement (see paragraph 8, “The language requirement and courses taken elsewhere,” above).
14. **Yale transcript** Outside courses may be entered on a student’s Yale transcript only if they are applied to the 36-course-credit requirement, the distributional requirements, and/or the requirements of a major program. Such courses must be entered on the Yale transcript if they are to be applied toward any of these requirements. Except for transcripts of transfer students and students in the Eli Whitney Students Program – on which see section M, Transfer Students, or section N, Eli Whitney Students Program – courses that are applied toward the 36-course-credit requirement are listed by title with indication of the credit units earned, but without grades. Courses that are applied only toward the distributional requirements are listed without grades and with the designation “for distributional credit only.” Courses that are applied only toward the requirements of a major program are listed without grades and with the designation “for credit toward the major only.” Once a course has been entered on a student’s Yale transcript at the student’s request, or as a consequence of reinstatement, the entry may not subsequently be removed at the student’s request.
15. **Acceleration** See section Q, Acceleration Policies.

† Students on promotion hold who employ outside course credits to repair a credit deficiency cannot subsequently have those credits removed from their transcript for any reason and are thus ineligible to take a year abroad.

R. Acceleration Policies

ACCELERATION BY THE EARLY ACCUMULATION OF THIRTY-SIX COURSE CREDITS ALL EARNED AT YALE

A student may accelerate progress toward graduation by accumulating thirty-six course credits in fewer than eight terms of enrollment. Such a student must earn all thirty-six course credits at Yale and may not offer course credits earned at another institution in order to reduce the number of terms of enrollment at Yale.

1. **Study abroad** Terms spent on a Year or Term Abroad count as if they were terms of enrollment in Yale College, but course credits earned therein may not be applied to acceleration by the early accumulation of thirty-six course credits because all such credits must be earned at Yale. A spring term at the Yale College program at the

Paul Mellon Centre in London is, in fact, a term of enrollment in Yale College, and credits earned in that program may be applied to such acceleration. Attendance at Yale Summer Session or the summer program at the Paul Mellon Centre in London does not count as a term of enrollment, but course credits earned in these summer programs may be applied toward acceleration by the early accumulation of thirty-six credits all earned at Yale. See section K, Special Academic Programs, “Courses in Yale Summer Session” and “Yale in London Summer Program.”

2. **Patterns of attendance** While students employing acceleration credits in order to acquire an accelerated degree are required to attend Yale in certain patterns of attendance (see “Acceleration by Use of Acceleration Credits,” paragraph 4, below), no particular pattern of attendance is required from a student accelerating by the early accumulation of thirty-six course credits all earned at Yale.
3. **Six or seven terms of enrollment** Either a six-term degree or a seven-term degree may be acquired by the accumulation of thirty-six course credits earned at Yale; graduation after fewer than six terms of enrollment in Yale College by such an early accumulation of course credits is not permitted.
4. **Notification by the student** A student intending to accelerate through the early accumulation of thirty-six course credits all earned at Yale must notify the Committee on Honors and Academic Standing of that intention by the last day of the Add/Drop period in the student's final term of enrollment. Such notification is made by submission of the required form to the office of the residential college dean and must include written certification from the student's director of undergraduate studies (DUS) that the student will have completed all of the requirements of the major program, and from the residential college dean that the student will have fulfilled the distributional requirements by the conclusion of that term. Failure to do so will result in the student being charged a fine of \$100.
5. **Deceleration** A student may subsequently decelerate and take an eight-term degree. A reversion to an eight-term degree will not affect a student's academic good standing or eligibility for eight terms of financial aid.

ACCELERATION BY USE OF ACCELERATION CREDITS

For the definition of acceleration credits and the criteria for their award, see the Table of Acceleration Credit. For the sake of equity and fairness, no exceptions can be made to the regulations governing the use of acceleration credits. Inquiries about acceleration may be addressed to the residential college dean or to the University Registrar's Office (registrar@yale.edu), 246 Church Street.

1. **Eligibility** The following charts list the number of total credits needed to accelerate by one or two terms during a given term of enrollment:

Acceleration by One Term	Minimum Total Credits	Minimum Yale Course Credits	Activated Acceleration Credits
In the third term	12	8	4
In the fourth term	16	12	4
In the fifth term	21	17	4
In the sixth term	26	22	4

Acceleration by Two Terms	Minimum Total Credits	Minimum Yale Course Credits	Activated Acceleration Credits
In the third term	17	8	9
In the fourth term	21	12	9
In the fifth term	26	17	9

2. **Application deadline** Application to accelerate is made by submission of the required form to the office of the residential college dean. The deadline for applying for acceleration is the last day of classes in the respective term of enrollment given in the eligibility charts above. As a special exception, a student accelerating by one or two terms who wishes to complete a term of study abroad as early as during the third term of enrollment would have to petition to accelerate before the third term of enrollment. Such a student should consult with the residential college dean. The absolute and final deadline for applying for acceleration by one term is the last day prior to the start of classes in the seventh term of enrollment. The absolute and final deadline for applying for acceleration by two terms is on the last day prior to the start of classes in the sixth term of enrollment.

3. **Course credit requirement for graduation** A student accelerating by two terms must earn at least twenty-seven course credits at Yale, and a student accelerating by one term must earn at least thirty-two course credits at Yale. Therefore, with the exception of credit earned through enrollment in the Year or Term Abroad program, a student accelerating by use of acceleration credits may not apply any credit earned at another college or university toward the 36-course-credit requirement for the bachelor's degree.

4. **Enrollment requirements, including required patterns of attendance** A student intending to accelerate by two terms must complete six terms of full-time enrollment in Yale College. Those six terms may be in any pattern of enrollment as long as the student's sixth and final term of enrollment is a spring term.

A student intending to accelerate by one term must complete seven terms of full-time enrollment in Yale College. Those seven terms may be in any pattern of enrollment as long as the student's seventh and final term of enrollment is a spring term.

A student accelerating by two terms may not combine acceleration credits and course credits to graduate in fewer than six terms; six terms of enrollment is the minimum as well as the maximum requirement for acceleration by two terms. Likewise, a student accelerating by one term may not combine acceleration credits and course credits to graduate in fewer than seven terms; seven terms of enrollment is the minimum as well as the maximum requirement for acceleration by one term.

5. **Deceleration** A student accelerating by two terms or one term may subsequently apply to decelerate by submitting the required form to the office of the residential college dean. A student who is considering whether to decelerate should consult with the residential college dean as soon as possible. A student accelerating by two terms who subsequently decides to accelerate by only one term must meet the requirements for acceleration by one term. A student accelerating by two terms or one term may subsequently decide to decelerate completely and take an eight-term degree. Two-term accelerants who choose to decelerate in their sixth term, thereby requiring a reinstatement of their original class year, will be assessed a fee of \$50. Since by definition an eight-term degree is not an accelerated degree, such a student will lose the use of acceleration credits. A reversion to an eight-term degree will not adversely affect a student's academic good standing or eligibility for eight terms of financial aid.
6. **Reacceleration** A student who has declared an intention to decelerate and to relinquish the use of acceleration credits is permitted to accelerate again through the use of acceleration credits as long as the student meets the eligibility requirements and application deadline for one or two terms of acceleration given in paragraphs 1 and 2 above.

GENERAL RULES RELATING TO THE USE OF ACCELERATION CREDITS

1. **Notification** The chief responsibility for ascertaining eligibility and for meeting the deadline to apply for acceleration rests with the students themselves. However, the University Registrar's Office will make reasonable efforts to inform students, at the beginning of the third term of enrollment, of their eligibility to accelerate by one or two terms.

It is not the responsibility of the University Registrar's Office or Yale College to remind students who have declared an intention to accelerate of the rules on the pattern of attendance stipulated for the use of acceleration credits. Students who are accelerating are themselves responsible for planning to meet these rules, and if a student's pattern of attendance does not conform to them, it will be concluded that the student has decided to relinquish the use of acceleration credits and not to accelerate. Such a student will be automatically decelerated.

2. **Interruption of studies by leave or withdrawal** Terms of enrollment need not be consecutive. A student accelerating by one or two terms has the same privileges of leave of absence or withdrawal that a nonaccelerating student has.
3. **A fifth term of leave of absence** A student taking an accelerated degree by use of acceleration credits who has had four terms of leave of absence may receive a fifth term of leave if it is needed to bring the student's pattern of attendance into conformity with the pattern of attendance stipulated for an accelerated degree. See section J, Time Away and Return. (*Policy updated January 2023.*)
4. **Withdrawal** If a student withdraws from a term after the fifteenth day of the term, the uncompleted term counts as a term of enrollment, both in the determination of the student's eligibility to accelerate and in the calculation of the number of terms in which the student has been in attendance at Yale. As an exception to this rule, if an accelerating student withdraws from Yale College without having successfully

completed a term, the student has the option of not counting the uncompleted term as one of the six or seven terms of enrollment.

5. **Enrollment in Yale Summer Session or the Yale in London summer program**

Attendance at Yale Summer Session or the summer program at the Paul Mellon Centre in London does not constitute a term of enrollment. Thus a student accelerating by one term may not offer attendance at Yale Summer Session or the summer program at the Paul Mellon Centre in London as one of the required seven terms of enrollment in Yale College. Course credits earned by attendance at these summer programs, however, may be applied toward the requirements for the bachelor's degree by accelerating students, provided that such students meet the conditions specified for acceleration by one or two terms. See also section K, Special Academic Programs, "Courses in Yale Summer Session" and "Yale in London Summer Program."

6. **Course credit from outside Yale** A student accelerating by two terms must earn at least twenty-seven course credits at Yale, and a student accelerating by one term must earn at least thirty-two course credits at Yale. Therefore, an accelerating student may not apply any credit earned at another college or university toward the 36-course-credit requirement for the bachelor's degree. A student, whether accelerating or not, may be permitted to apply course credits earned at another college or university toward the requirements of the student's major program or toward any of the distributional requirements other than those for the first year. See section Q, Credit from Other Universities.

Please note that attendance at the Yale College program at the Paul Mellon Centre in London during the spring term counts just as if it were a term of enrollment at Yale College in New Haven. Attendance at the Paul Mellon Centre during the summer, however, does not count as a term of enrollment. See section K, Special Academic Programs, "Yale in London Summer Program."

7. **Year or Term Abroad** A Year Abroad counts as two terms and a Term Abroad counts as one term of enrollment in Yale College. Credits earned on a Year or Term Abroad count as the equivalent of Yale course credits.

Note that after a Year or Term Abroad all students must attend two subsequent terms in Yale College; see section K, Special Academic Programs, "Year or Term Abroad." In many cases a student must relinquish the use of acceleration credits and decelerate in order to take a Year or Term Abroad. As a special exception, a student accelerating by one or two terms who wishes to complete a term of study abroad as early as during the third term of enrollment would have to petition to accelerate before the third term of enrollment. A student who wishes to accelerate and to take a Year or Term Abroad should consult with the residential college dean and the Center for International and Professional Experience at the earliest opportunity.

An accelerating student who wishes also to complete a Year or Term Abroad must conform to one of the following schemes:

Terms of Acceleration	Total Terms at Yale	Total Terms on YA/TA	Acceleration Credits	Minimum Course Credits Earned at Yale	Maximum Course Credits Earned on YA/TA
1	6	1	4	28	4
1	5	2	4	23	9
2	5	1	9	23	4
2	4	2	9	18	9

8. **Distributional requirements** Acceleration credits may not be employed to meet the distributional requirements for the first, sophomore, or junior years, or the distributional requirements for the bachelor's degree, including the language requirement. With permission, an accelerating student may apply course credit earned at another college or university toward the distributional requirements for the bachelor's degree and to those for the sophomore and junior years; students should consult with the residential college dean to be directed to the appropriate authority for such approval.
9. **Major requirements** With the permission of the DUS, an accelerating student may apply credit earned at another university toward the requirements of the student's major program.
10. **Makeup of course credit deficiency** If an accelerating student's record at the end of a term of enrollment shows a deficiency for promotion, academic good standing, or graduation, the student will be allowed to repair the deficiency without forfeiting the use of acceleration credits only through enrollment in Yale Summer Session if the credit earned is to be applied toward the 36-course-credit requirement for the bachelor's degree. See section D, Promotion and Good Standing.
11. **Enrollment after graduation as a non-degree student** Accelerating students who have qualified for the award of the bachelor's degree are eligible, as are all Yale College graduates, for full-time enrollment in Yale College as non-degree students. Because such students will have graduated, they will not be eligible for financial aid. See section O, Non-degree Students Program.
12. **Transfer students and students in the Eli Whitney Students Program** Students admitted by transfer from other colleges and universities are not eligible for acceleration by the use of acceleration credits.

S. Amendments

The University reserves the right to amend or supplement these regulations at any time upon such notice to students as it deems appropriate.

MAJORS IN YALE COLLEGE

African American Studies (B.A.)
African Studies (B.A.)
American Studies (B.A.)
Anthropology (B.A.)
Applied Mathematics (B.A. or B.S.)
Applied Physics (B.S.)
Archaeological Studies (B.A.)
Architecture (B.A.)
Art (B.A.)
Astronomy (B.A.)
Astrophysics (B.S.)
Biomedical Engineering (B.S.)
Chemical Engineering (B.S.)
Chemistry (B.A. or B.S.)
Classical Civilization (B.A.)
Classics (B.A.)
Cognitive Science (B.A. or B.S.)
Comparative Literature (B.A.)
Computer Science (B.A. or B.S.)
Computer Science and Economics (B.S.)
Computer Science and Mathematics (B.S.)
Computer Science and Psychology (B.A.)
Computing and Linguistics (B.A. or B.S.)
Computing and the Arts (B.A.)
Earth and Planetary Sciences (B.A. or B.S.)
East Asian Languages and Literatures (B.A.)
East Asian Studies (B.A.)
Ecology and Evolutionary Biology (B.A. or B.S.)
Economics (B.A.)
Economics and Mathematics (B.A.)
Electrical Engineering (B.S.)
Electrical Engineering and Computer Science (B.S.)
Engineering Sciences (Chemical) (B.S.)
Engineering Sciences (Electrical) (B.A. or B.S.)
Engineering Sciences (Environmental) (B.A.)
Engineering Sciences (Mechanical) (B.A. or B.S.)
English (B.A.)
Environmental Engineering (B.S.)
Environmental Studies (B.A. or B.S.)
Ethics, Politics, and Economics (B.A.)
Ethnicity, Race, and Migration (B.A.)
Film and Media Studies (B.A.)
French (B.A.)
German Studies (B.A.)
Global Affairs (B.A.)
Greek, Ancient and Modern (B.A.)
History (B.A.)
History of Art (B.A.)
History of Science, Medicine, and Public Health (B.A.)
Humanities (B.A.)
Italian Studies (B.A.)
Jewish Studies (B.A.)
Latin American Studies (B.A.)
Linguistics (B.A.)
Mathematics (B.A. or B.S.)
Mathematics and Philosophy (B.A.)
Mathematics and Physics (B.S.)
Mechanical Engineering (B.S.)
Modern Middle East Studies (B.A.)
Molecular Biophysics and Biochemistry (B.A. or B.S.)
Molecular, Cellular, and Developmental Biology (B.A. or B.S.)
Music (B.A.)
Near Eastern Languages and Civilizations (B.A.)
Neuroscience (B.A. or B.S.)
Philosophy (B.A.)
Physics (B.S.)
Physics and Geosciences (B.S.)
Physics and Philosophy (B.A. or B.S.)
Political Science (B.A.)
Portuguese (B.A.)
Psychology (B.A. or B.S.)
Religious Studies (B.A.)
Russian (B.A.)
Russian, East European, and Eurasian Studies (B.A.)
Sociology (B.A.)
South Asian Studies (second major only)
Spanish (B.A.)

Special Divisional Major (B.A. or B.S.)
Statistics and Data Science (B.A. or B.S.)
Theater and Performance Studies (B.A.)
Urban Studies (B.A.)
Women's, Gender, and Sexuality Studies
(B.A.)

MAJORS BY DISCIPLINES

HUMANITIES & THE ARTS

- Architecture
- Art
- Classics & Classical Civilization
- Comparative Literature
- East Asian Languages and Literature
- English
- Film and Media Studies
- History
- History of Science, Medicine, and Public Health
- Humanities
- Jewish Studies
- Languages, including, but not limited to: French, German, Italian, Portuguese, Russian, Spanish
- Music
- Near Eastern Languages and Civilizations
- Philosophy
- Religious Studies
- Theater, Dance, and Performance Studies

SOCIAL SCIENCES

- Anthropology
- Cognitive Science
- Economics
- Global Affairs
- Linguistics
- Political Science
- Psychology
- Sociology

BIOLOGICAL SCIENCES

- Ecology and Evolutionary Biology
- Molecular Biophysics and Biochemistry
- Molecular, Cellular, & Developmental Biology

PHYSICAL SCIENCES

- Astronomy & Astrophysics
- Chemistry
- Earth and Planetary Sciences
- Mathematics

- Neuroscience
- Physics
- Statistics and Data Science

ENGINEERING

- Applied Mathematics
- Applied Physics
- Biomedical Engineering
- Chemical Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Mechanical Engineering

INTERDISCIPLINARY

- African American Studies
- African Studies
- American Studies
- Archaeological Studies
- Computing and Linguistics
- Computing and the Arts
- East Asian Studies
- Environmental Studies
- Ethics, Politics, and Economics
- Ethnicity, Race, and Migration
- Latin American Studies
- Modern Middle East Studies
- Russian, East European, and Eurasian Studies
- South Asian Studies
- Urban Studies
- Women's, Gender, and Sexuality Studies

PROGRAMS AND CERTIFICATES IN YALE COLLEGE

Students interested in earning a certificate(s) should refer to the academic policy about Curricular Combinations and Course Overlap Allowances. They should also submit a Declaration of Candidacy for a Certificate form as early as possible in their studies. The form is sent to both the Certificate Director and the Registrar's Office.

ADVANCED LANGUAGE CERTIFICATES

Ancient Egyptian (See under Near Eastern Languages and Civilizations)

Ancient Greek (See under Classics)

Arabic (See under Near Eastern Languages and Civilizations)

Chinese (See under East Asian Languages and Literatures)

French

German

Hebrew (See under Near Eastern Languages and Civilizations)

Hindi (See under South Asian Studies)

isiZulu (See under African Studies)

Italian

Japanese (See under East Asian Languages and Literatures)

Kiswahili (See under African Studies)

Korean (See under East Asian Languages and Literatures)

Latin (See under Classics)

Portuguese

Russian

Spanish

Turkish (See under Near Eastern Languages and Civilizations)

Vietnamese (See under Southeast Asia Studies)

Yoruba (See under African Studies)

INTERDISCIPLINARY CERTIFICATES

Climate Science and Solutions

Education Studies

Education Studies Scholars Intensive (requires an application)

Energy Studies

Global Health Studies (requires an application)

Human Rights Studies (requires an application)

Islamic Studies

Medieval Studies

Persian and Iranian Studies

Translation Studies

SKILLS-BASED CERTIFICATES

Ethnography

Programming (See under Computer Science)

Data Science (See under Statistics & Data Science)

MAJOR ROADMAPS

Yale College offers over 80 majors, and it may be hard to choose among them. As you contemplate the choices, and even after you have chosen, it may be difficult to determine precisely which courses you need to take and when to take them in order to fulfill the requirements of the major.

Below is a list of “roadmaps” or visual representations which indicate the path—or paths—through many of the majors.

- African Studies
- American Studies
- Anthropology
- Biomedical Engineering
- Chemistry
- Cognitive Science
- Comparative Literature
- Computer Science
- East Asian Studies
- Ecology and Evolutionary Biology
- English
- Environmental Studies
- Ethics, Politics, and Economics
- Ethnicity, Race, and Migration
- Germanic Languages and Literatures
- Global Affairs
- History
- History of Art
- History of Science, Medicine, and Public Health
- Humanities
- Italian Studies
- Linguistics
- Mathematics
- Mechanical Engineering
- Molecular Biophysics and Biochemistry
- Molecular, Cellular, and Developmental Biology
- Neuroscience
- Physics
- Political Science
- Psychology
- Russian
- Russian, East European, and Eurasian Studies

- Sociology
- Spanish
- Statistics and Data Science

III. SUBJECTS OF INSTRUCTION

Accounting

Please see Yale Course Search for information about ACCT 270, Foundations of Accounting and Valuation.

Aerospace Studies

Program adviser: George Granholm (george.granholm@yale.edu) [spring 2023]; Lester Oberg (lester.oberg@yale.edu) and Greg Jeong (greg.jeong@yale.edu) [fall 2023 and spring 2024]; airforce@yale.edu; afrotc.yalecollege.yale.edu

Aerospace Studies is the academic component of the Yale Air Force Reserve Officer Training Corps (AFROTC) Detachment 009. Typically, students pursue the Aerospace Studies curriculum in tandem with AFROTC program requirements, including military leadership preparation and physical training. After completing all Air Force ROTC requirements and Yale College academic degree requirements, cadets commission as officers into the Air Force or Space Force upon graduation from Yale College, serving in a variety of military specialties such as aviation, intelligence, logistics, and medicine. The Aerospace Studies program and the AFROTC prepare students to excel as Air Force and Space Force leaders and to operate effectively in a dynamic military environment.

For additional information about Yale's Air Force Reserve Officers Training Corps program, visit the program website.

COURSES FOR NONMAJORS

Enrollment in Aerospace Studies courses is not limited to cadets; courses are open to any Yale student.

ACADEMIC REQUIREMENTS OF THE MAJOR

The Aerospace Studies core curriculum introduces topics such as the profession of arms, military history, military communication, national security, and the philosophy of warfare. The Department of Aerospace Studies presents this content in the context of military leadership to prepare students for active duty service. Most Aerospace Studies courses count for enrollment credit only; they do not count toward the thirty-six course credits required for the Yale bachelor's degree. USAF 411 and USAF 414 do count toward graduation credit.

Students in the AFROTC program must successfully complete eight USAF courses total, typically taking one course per semester, in addition to the requirements of their Yale College major. The Department of Aerospace Studies offers these courses: USAF 101, 102, 200, 201, 202, 301, 302, 401, 402, 411, and USAF 414. When the Department of History offers HIST 221, Military History of the West since 1500, cadets may use it to fulfill the one term of the 200-level AFROTC requirement (USAF 202) and also count it toward the bachelor's degree. Cadets become involved in the management of their own cadet wing through a mandatory two-hour leadership laboratory each week.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the program in Aerospace Studies.

FACULTY ASSOCIATED WITH THE PROGRAM OF AEROSPACE STUDIES

Lecturers Lieutenant Colonel Greg Jeong, USAF, Major Daniel Gartland, USAF

ROTC Training Instructor Technical Sergeant Christopher Goad, USAF

African American Studies

Director of undergraduate studies: Elizabeth Hinton
(elizabeth.hinton@yale.edu); afamstudies.yale.edu

The African American Studies major examines, from numerous disciplinary perspectives, questions of race, culture, and modern struggles for equality centering on the experiences of people of African descent in Black Atlantic societies including the United States, the Caribbean, Latin America, Europe, and Africa, and the global impact of those experiences. Students in the department explore the historical, cultural, political, economic, and social development of Black Atlantic societies. Majors work to become informed thinkers who are intellectually prepared to offer clarity and insight to ongoing academic and public debates centered in questions concerning race and inequality.

African American Studies majors become knowledgeable about the history, primary methodologies, and interdisciplinary breadth of the field. Students learn to critique, articulate, analyze, and interpret universal themes concerning both individuals in society and group interactions as they relate to the work of scholars, scientists, writers, artists, musicians, economists, and entrepreneurs.

REQUIREMENTS OF THE MAJOR

African American Studies can be taken either as a stand-alone major or as one of two majors in consultation with the director of undergraduate studies (DUS). Pertinent regulations can be found in Academic Regulations, section L, Special Academic Arrangements, "Two Majors."

The major in African American Studies requires twelve term courses, including seven core courses and five electives in an area of concentration. The seven core courses include the African American history sequence AFAM 160 and AFAM 162, which can be taken in either order; one humanities course in African American literature; one course in the social sciences relevant to African American studies; the junior seminar (AFAM 410); the senior colloquium (AFAM 480) and senior essay (AFAM 491).

Area of concentration Students majoring in African American Studies are required to choose an area of concentration comprised of five courses. This cluster of interrelated courses is intended to ground the student's learning experience in one area of investigation. Often students choose an area of concentration in a traditional discipline such as political science, art history, economics, sociology, American studies, history, or English language and literature. Students can also construct interdisciplinary areas of concentration that span traditional departments and encompass broader theoretical frameworks such as race and ethnicity, cultural studies, black arts, or feminism and gender studies. All majors are encouraged to take upper-level courses as part of their concentration, especially those courses centering on research and methodology. None of the seven core courses may be counted among the required electives in the area of concentration.

Junior seminar In their junior year students must take the junior seminar, AFAM 410. This course provides majors with theoretical and methodological bases for the work they will do during their research-oriented senior year.

Credit/D/Fail No more than one course taken Credit/D/Fail may be counted toward the major.

SENIOR REQUIREMENT

Senior majors participate in a colloquium in AFAM 480 that gives them an opportunity to exchange ideas with each other and with more advanced scholars. Students in AFAM 480 submit a prospectus, compile a working bibliography, begin or continue research, and write the first twenty pages of the senior essay. After completing the colloquium, each student carries out the remaining research and writing of a senior essay in AFAM 491 under the guidance of a faculty member in the chosen discipline or area of concentration.

Students are strongly encouraged to use the summer between the junior and senior years for research directly related to the senior essay. For example, field or documentary research might be undertaken in urban or rural communities in America and throughout the diaspora. The particular research topic and design are to be worked out in each case with a faculty adviser.

ADVISING

Students considering a program of study in African American Studies should consult the DUS as early as possible. Areas of concentration and schedules for majors must be approved by the DUS.

Two majors The requirements for double majoring often depend on the other department or discipline in which the student is planning to major. Students interested in double majoring should initially make an appointment with the DUS in African American Studies to discuss their plans and the courses they have already taken towards the African American Studies major. The student should, then, plan a meeting with both the DUS in African American Studies as well as the DUS in the other department to ensure clarity on the requirements for both departments. During this meeting, the student may explore the possibility of writing a joint thesis instead of two separate theses.

Graduate work African American Studies offers training of special interest to those considering admission to graduate or professional schools and careers in education, journalism, law, the arts, business management, city planning, international relations, politics, psychology, publishing, public health, or social work. The interdisciplinary structure of the department offers students an opportunity to satisfy the increasingly rigorous expectations of admissions committees and prospective employers.

STUDY ABROAD

A limited number of courses taken during sophomore or junior semesters abroad can be counted toward the major with DUS approval.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl sen req)

Specific courses required AFAM 160, 162, 410

Distribution of courses 1 humanities course in AFAM lit and 1 relevant social science course, both approved by DUS; 5 courses in area of concentration

Senior requirement Senior colloquium (AFAM 480) and senior essay (AFAM 491)

FACULTY OF THE DEPARTMENT OF AFRICAN AMERICAN STUDIES

Professors Elijah Anderson, David Blight, Daphne Brooks, Hazel Carby (*Emeritus*), Marlene Daut, Erica Edwards, Roderick Ferguson, Phillip Goff, Jacqueline Goldsby, Matthew Jacobson, Gerald Jaynes, Christopher Miller (*Emeritus*), Tavia Nyong'o, Robert Stepto (*Emeritus*), Michael Veal, Shane Vogel

Associate Professors Crystal Feimster, Elizabeth Hinton, Edward Rugemer

Assistant Professors Jonathan Howard, Elleza Kelley, Carolyn Roberts

Lecturers Andrianna Campbell-LaFleur, Nicholas Forster, Fadila Habchi, Thomas Allen Harris, Ferentz Lafargue, Sarah Mahurin

African Studies

Director of undergraduate studies: Veronica Waweru (veronica.waweru@yale.edu), 115 Prospect St., Room 148; director of the program in African Languages: Kiarie Wa'Njogu (john.wanjogu@yale.edu), 115 Prospect St., Room 138, 432-0110; www.yale.edu/macmillan/african

The program in African Studies enables students to undertake interdisciplinary study of the arts, history, cultures, politics, and development of Africa. As a foundation, students in the program gain cross-disciplinary exposure to Africa. In the junior and senior years, students develop analytical ability and focus their studies on research in a particular discipline such as anthropology, art history, history, languages and literature, political science, or sociology or on topics such as global health, economic development, or human rights.

African Studies provides training of special interest to those considering admission to graduate or professional schools or careers in education, journalism, law, management, medicine, politics, psychology, international relations, creative writing, or social work. The interdisciplinary structure of the program offers students an opportunity to satisfy the increasingly rigorous expectations of admissions committees and prospective employers for a broad liberal arts perspective that complements specialized knowledge of a field.

REQUIREMENTS OF THE MAJOR

The African Studies program consists of twelve term courses, including (1) one African Studies course in the humanities and one in the social sciences; (2) two years of an African language (Arabic, Kiswahili, Twi, Wolof, Yorùbá, isiZulu, or others with permission of the director of undergraduate studies (DUS), unless waived by examination); (3) one research methods course, AFST 505 or an alternative course that either serves to deepen the concentration or provide methodological tools for the senior essay, selected in consultation with the DUS; (4) in a concentration of four term courses, in a discipline such as anthropology, art history, history, languages and literature, political science, or sociology, or in an interdisciplinary program such as African American Studies; Ethnicity, Race, and Migration; or Women's, Gender, and Sexuality Studies; or in a cross-disciplinary area such as diaspora studies or development studies; and (5) AFST 491, the senior essay. The required courses represent the core of the program and are intended to expose the student both to the interdisciplinary nature of African studies and to the methodologies currently being brought to bear on the study of African cultures and societies.

Language requirement African Studies majors are required to complete two years of college-level study (or the equivalent) of an African language, and they are encouraged to continue beyond this level. For the language requirement to be waived, a student must pass a placement test for admission into an advanced-level course or, for languages not regularly offered at Yale, an equivalent test of speaking, listening, reading, and writing skills administered through the Center for Language Study. Students should begin their language study as early as possible. If the requirement is waived, students must substitute other African Studies courses for the four required language courses.

With permission of the DUS, students may count courses in an additional language, such as French or Portuguese, toward the major requirements. Students are encouraged to include upper-level courses, especially those centering on research and methodology.

Program in African languages The language program offers instruction in five major languages from sub-Saharan Africa: Kiswahili (eastern and central Africa), Twi (western Africa), Wolof (western Africa), Yorùbá (western Africa), and isiZulu (southern Africa). African language courses emphasize communicative competence, using multimedia materials that focus on the contemporary African context. Course sequences are designed to enable students to achieve advanced competence in all skill areas by the end of the third year, and students are encouraged to spend a summer or term in Africa during their language study.

Courses in Arabic are offered through the Department of Near Eastern Languages and Civilizations. Noncredit instruction in other African languages is available by application through the Directed Independent Language Study program at the Center for Language Study. Contact the director of the Program in African Languages (john.wanjogu@yale.edu) for information.

SENIOR REQUIREMENT

Students are required to complete a senior essay in AFST 491, working under the guidance of a faculty adviser. With prior approval by the DUS, a combined senior essay may be submitted for those pursuing a second major.

A preliminary statement indicating the topic to be addressed and the name of the faculty adviser must be submitted to the DUS by the end of the second week of the fall term in the senior year.

ADVISING

Students planning to major in African Studies should consult the DUS as early as possible.

Graduate work, M.A. program Students in Yale College are eligible to complete the M.A. in African Studies in one year of graduate work if they begin the program in the third and fourth undergraduate years. Students interested in this option must complete eight graduate courses in the area by the time of the completion of the bachelor's degree. Only two courses may be counted toward both graduate and undergraduate degrees. Successful completion of graduate courses while still an undergraduate does not guarantee admission into the M.A. program.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Distribution of courses 1 AFST course in humanities and 1 in social sciences; 2 years of African lang; 4 courses and 1 research methods course in area of concentration

Substitution permitted If language req is waived, 4 addtl African Studies courses

Senior requirement Senior essay (AFST 491)

CERTIFICATES OF ADVANCED LANGUAGE STUDY

The Department of African Studies offers a Certificate of Advanced Language Study in three major African languages—Kiswahili, Yoruba, and isiZulu, and students may pursue a Certificate of Advanced Language Study in each of these languages. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 Yale course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated to include the Certificate of Advanced Language Study.

FACULTY ASSOCIATED WITH THE PROGRAM OF AFRICAN STUDIES

Professors Lea Brilmayer (*Law School*), John Darnell (*Near Eastern Languages & Civilizations*), Owen Fiss (*Law School*), Robert Harms (*History*), Daniel Magaziner (*History*), Roderick McIntosh (*Anthropology*), Christopher Miller (*African American Studies, French*), Catherine Panter-Brick (*Anthropology*), Jeremy Seekings (*Global Affairs*) (*Visiting*), Ian Shapiro (*Political Science*), Robert Thompson (*Emeritus*), Michael Veal (*Music*), David Watts (*Anthropology*), Elisabeth Wood (*Political Science*)

Associate Professors Robert Bailis (*School of the Environment*), Jonathan Wyrzten (*Sociology*)

Assistant Professors Katharine Baldwin (*Political Science*), Louisa Lombard (*Anthropology*)

Lecturers Lacina Coulibaly (*Theater Studies*), Anne-Marie Foltz (*Public Health*), David Simon (*Political Science*)

Senior Lectors II Sandra Sanneh, Kiarie Wa'Njogu

Senior Lectors Oluseye Adesola, Matuku Ngame

See visual roadmap of the requirements.

American Studies

Directors of undergraduate studies: James Berger (james.berger@yale.edu) [Spring 2023], TBD [Fall 2023, Spring 2024], 314 WLH, 432-1524; americanstudies.yale.edu

The American Studies program encourages the interdisciplinary study of the cultures and politics of the United States, the changing representations of national identity, and the construction of borderland and diasporic cultures over time. Each student in the major combines courses in American Studies with courses from other relevant disciplines (literature, history, the arts, and the social sciences) to explore these broad topics from local, national, and global perspectives. Through the selection of an area of concentration, each student develops a focus for coursework in the major. The program encourages scholarly work in nontraditional combinations of disciplines; at the same time, however, it assumes and requires a substantial foundation of knowledge in the history and culture of the United States. Students interested in the major are encouraged to consult with the director of undergraduate studies (DUS) as early as possible.

REQUIREMENTS OF THE MAJOR

All students majoring in American Studies must take fourteen term courses approved by the program's faculty. Although a good deal of freedom in course selection is permitted, it is expected that all students will acquaint themselves with the materials, skills, and perspectives of cultural studies. Accordingly, the major requires completion—preferably by the end of the sophomore year, but no later than the end of the junior year—of at least four gateway courses (AMST 111–299), including two in cultural history/cultural studies, one broad survey course in American literature, and one preparatory course for work in the student's area of concentration, to be selected in consultation with the DUS. One of these four courses must be listed as an “Early Americas” course on the American Studies website and indicated as such on Yale Course Search. Students may, with DUS permission, substitute a First-Year Seminar for a gateway course. An additional five concentration courses from diverse disciplines must be taken for a letter grade, one of which must incorporate a comparable topic from a non-U.S. perspective. Two electives chosen from the American Studies course offerings are also required.

Students must take two junior seminars (AMST 300–399) during their junior year. At least one of the seminars must fall within the student's area of concentration, described below. In each of the seminars, students are expected to demonstrate proficiency in interdisciplinary research and analysis through the production of critical essays on primary source materials or a paper of fifteen to twenty pages. Sophomores contemplating a junior term abroad are urged to take one of the junior seminars in the spring term of their sophomore year.

Areas of concentration Each American Studies major selects an area of concentration, normally in the fall of the junior year, from six possible choices: (1) national formations, (2) the international United States, (3) material cultures and built environments, (4) politics and American communities, (5) visual, audio, literary, and performance cultures, and (6) public humanities. The concentration in national formations explores historic migrations, settlements, and encounters among peoples who have formed the American nation, with an emphasis on Native American history and the construction of America's frontiers and borderlands. The international United

States concentration focuses on historic and contemporary diasporas, the role of the United States outside its national borders, and the flows of American peoples, ideas, and goods throughout the globe. Students in the material cultures and built environments concentration examine the formation of the American landscape from the natural to the human-made, including the development of American architecture and the visual and decorative arts. The concentration in politics and American communities investigates the emergence of social groups and their political struggles at the local and national levels, emphasizing the themes of power, inequality, and social justice. Majors with a concentration in visual, audio, literary, and performance cultures study American consumer culture, popular culture, representations, and media in relation to U.S. literatures. Students in the public humanities concentration explore various forms of public intellectual engagement, including museum studies, documentary work, public history, digital humanities, and archival based work in the visual or performing arts; senior projects in this area may consist of works or productions beyond the traditional scholarly essay. Students may also petition the DUS to develop an independent concentration.

SENIOR REQUIREMENT

During the senior year, each student in the major completes work in the area of concentration in one of three ways. First, the student may enroll in a senior seminar within the area of concentration (AMST 400–490). Students should apply interdisciplinary methods and undertake original research to produce a final paper of twenty to twenty-five pages. Students must complete all course requirements to fulfill the senior requirement. Students electing this option should submit the senior seminar registration form, signed by the seminar instructor, to the DUS and the undergraduate registrar.

Second, the student may complete a one-term senior project or essay (AMST 491). The product should be a thirty-page essay or its equivalent in another medium. To apply for admission to AMST 491, a student should submit a prospectus, signed by the faculty adviser, to the DUS and the undergraduate registrar.

Third, the student may enroll in the intensive major (AMST 493 and 494) and work independently for two terms. The intensive major offers an opportunity for significant original research leading to a substantial senior project. AMST 493, 494 carries two terms of credit; its final product should be a sixty-page essay or its equivalent in another medium. All students in the intensive major participate in a yearlong proseminar on theory and methods. One term of the two-term project may count as a course in the area of concentration. To apply for admission to AMST 493 and 494, a student should submit a prospectus, signed by the faculty adviser, to the DUS and the undergraduate registrar.

As a multidisciplinary program, American Studies draws on the resources of other departments and programs in the University. The list of American Studies courses is meant to be suggestive only: apart from those courses required for the major, it is neither restrictive nor exhaustive. Students are encouraged to examine the offerings of other departments in both the humanities and the social sciences, as well as Residential College Seminars, for additional relevant courses. The stated area of concentration of each student determines the relevance and acceptability of other courses.

ADVISING

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in American Studies.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses (incl senior req)

Distribution of courses 4 gateway courses, as specified; 2 junior sems, 1 in area of concentration; 5 courses in area of concentration for letter grades, 1 on a related non-U.S. topic (1 may be one term of two-term senior project); 2 AMST electives

Substitution permitted 1 first-year sem for 1 gateway course; others with DUS permission

Senior requirement Senior sem (AMST 400–490) or one-term senior project (AMST 491) related to area of concentration

Intensive major Same, except two-term senior project (AMST 493 and 494) is required

FACULTY ASSOCIATED WITH THE PROGRAM OF AMERICAN STUDIES

Professors Ned Blackhawk (*History*), David Blight (*History, African American Studies*), Daphne Brooks (*African American Studies, Women's, Gender, & Sexuality Studies, Music*), Alicia Schmidt Camacho (*Ethnicity, Race, & Migration*), Hazel Carby (*African American Studies*), Edward Cooke, Jr. (*History of Art*), Michael Denning (*English, Ethnicity, Race, & Migration*), Wai Chee Dimock (*English*), Kathryn Dudley (*Anthropology*), Roderick Ferguson (*Women's, Gender, & Sexuality Studies*), Joanne Freeman (*History*), Beverly Gage (*History*), Jacqueline Goldsby (*English, African American Studies*), Inderpal Grewal (*Women's, Gender, & Sexuality Studies, Anthropology*), Scott Herring (*Women's, Gender, & Sexuality Studies*), Daniel HoSang (*Ethnicity, Race, & Migration*), Matthew Jacobson (*African American Studies, History*), Kathryn Lofton (*Religious Studies, History & Divinity, FAS Dean of Humanities*), Lisa Lowe (*DGS, Ethnicity, Race, & Migration*), Mary Lui (*History, Head of Timothy Dwight College*), Joanne Meyerowitz (*History*), Charles Musser (*Film & Media Studies, Theater Studies*), Tavia Nyong'o (*Theater & Performance Studies, African American Studies*), Gary Okihiro (*Ethnicity, Race, & Migration*), Stephen Pitti (*History, Ethnicity, Race, & Migration, Head of Ezra Stiles College*), Sally Promey (*Institute of Sacred Music, Divinity School, Religious Studies, History of Art*), Ana Ramos-Zayas (*Ethnicity, Race, & Migration, Women's, Gender & Sexuality Studies*), Marc Robinson (*Theater & Performance Studies, English*), Paul Sabin (*History, Environmental Studies*), Caleb Smith (*English*), Robert Stepto (*English, African American Studies*), Harry Stout (*Religious Studies, History & Divinity*), Dara Strolovitch (*Women's, Gender, & Sexuality Studies, Political Science*), Michael Veal (*Music, African American Studies*), Kalindi Vora (*Ethnicity, Race, & Migration, Women's, Gender, & Sexuality Studies*), John Warner (*History of Medicine, History*), Michael Warner (*English*), Laura Wexler (DUS) (*Women's, Gender, & Sexuality Studies*)

Associate Professors Rene Almeling (*Sociology*), Laura Barraclough (*Chair*) (*Ethnicity, Race, & Migration*), Crystal Feimster (*African American Studies, History*), Zareena Grewal (*Ethnicity, Race, & Migration, Religious Studies*), Greta LaFleur (*DGS*) (*Women's, Gender, & Sexuality Studies*), Albert Laguna (*Ethnicity, Race, & Migration*), Joanna Radin, (*History of Medicine, Anthropology, History*), Elihu Rubin (*Urbanism*), Edward Rugemer (*African American Studies*), Tisa Wenger (*Religious Studies, History & Divinity*)

Assistant Professors Julian Posada, Madiha Tahir

Senior Lecturers James Berger (*DUS*), Karin Roffman (*Humanities, English, Associate Director of Public Humanities*)

Lecturers Ryan Brasseaux (*Head of Davenport College*), Fadila Habchi (*African American Studies*), Leah Mirakhor, Quan Tran (*Ethnicity, Race, & Migration*)

See visual roadmap of the requirements.

Anthropology

Director of undergraduate studies: William Honeychurch
(william.honeychurch@yale.edu), Rm. 305, 51 Hillhouse Ave., 432-3676;
anthropology.yale.edu

Anthropology is the study of human cultural, social, and biological diversity from the distant past to the present day and around the world. The undergraduate major in Anthropology introduces students to key topics and approaches in three broad areas, also known as subfields: (1) the evolution of human and nonhuman primates, including the evolutionary biology of living people; (2) the archaeological study of human societies and cultures; (3) social, cultural, and linguistic dimensions of human life. In addition to gaining a broad understanding of these complementary areas of Anthropology, majors develop advanced skills in one or more subfields and may elect to pursue a formal concentration in archaeological, biological, or sociocultural anthropology, or in medical anthropology and global health. Whatever their path through the major, students learn ways of understanding and engaging with humanity that emerges from the sciences, social sciences, and humanities, and they often complete synergistic coursework in other departments and programs. All students write a senior essay, often based on independent research, and many go on to careers that incorporate anthropological perspectives.

REQUIREMENTS OF THE MAJOR

Students are required to present twelve course credits toward their major, including at least one introductory or intermediate (100-200 level) course in each of the three subfields of anthropology, at least three advanced courses (300-400 level, not including numbers reserved for senior essay work), and a senior essay. With approval from the director of undergraduate studies, up to three courses may be selected from other departments as cognates. Cognate courses should be chosen to expand a student's knowledge in one of the subfields of anthropology or in an area of cross-disciplinary concentration. For example, cognate courses for biological anthropology may be found in Ecology and Evolutionary Biology, Earth and Planetary Sciences, or Psychology, while cognates for sociocultural anthropology may be found in Sociology, Environmental Studies, Ethnicity, Race, and Migration, and Women's, Gender, and Sexuality Studies. Appropriate areas of cross-disciplinary coursework also include area studies (e.g., African Studies), or topics such as law, health, gender and sexuality, environment and ecology, science and technology, race and ethnicity, and others.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may be applied toward the Anthropology major.

SENIOR REQUIREMENT

All majors are required to complete a substantial paper during their senior year, either in a seminar or in ANTH 491. In most cases, the senior essay is a traditional written essay, although students may, in consultation with their adviser, propose to work in and submit other media; such senior essays should still be accompanied by a 10-15 page written exposition of the work and its relationship to anthropology. There are three options for completing the senior essay:

Option 1: Students may write a paper in an advanced seminar. A seminar senior essay must be more substantial than a typical term paper, generally 20–25 pages long. It is evaluated by the seminar instructor and a second reader drawn from the Yale faculty. Students must obtain written approval for this option from the seminar instructor no later than the third week of the term. Students fulfilling the requirements of two majors may not apply a single seminar essay toward the senior requirement for both majors. The deadline for a seminar senior essay is the senior essay deadline, not the term paper deadline. Students choosing this option must take the seminar for which they write their essay *in addition to* the three advanced courses required for the major. *Note that some concentrations in Anthropology do not permit a seminar-style senior essay.*

Option 2: An independent essay on a subject of the student's choice, completed in ANTH 491. A student pursuing this option must choose a topic and identify a faculty adviser by the end of the third week of the term in which the essay is to be written. By the same date, the adviser must approve a prospectus that outlines the topic, objectives, and methods of the essay, as well as a preliminary bibliography. The student should also inform the director of undergraduate studies of a preferred second reader by this time.

Option 3: A yearlong paper, begun in ANTH 471 or 472 and completed in ANTH 491. The yearlong essay is designed for students who wish to pursue more extensive independent projects than can be completed in a single term. Students must have their project approved by a faculty adviser who establishes the requirements for ANTH 471 or 472; approval is required before the student registers for ANTH 471 or 472, typically in the fall term of the senior year.

For options two and three, the adviser must have a faculty appointment in Anthropology, and the second reader must have a faculty appointment at Yale.

ADVISING

With permission of the DUS, students may apply up to two courses taken outside Yale as electives or cognates toward the Anthropology major. Such courses must have been approved for Yale College credit and may include courses taken on a year or term abroad or through summer study at another college or university. See Academic Regulations, section K, Special Academic Programs.

Graduate courses Most graduate seminars in anthropology are open to qualified undergraduates. Descriptions are available in the departmental office, 10 Sachem St. Permission of the instructor and of the director of graduate studies is required.

STUDY ABROAD

Study abroad courses that are approved for Yale College and Anthropology credit may be used to replace one elective. If more than one such study abroad course credit is to be used for the major, it will come at the expense of one or more of the three cognate courses which may be taken in any Yale department or program with the approval of the DUS in Anthropology.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 course credits (incl senior req)

Distribution of courses At least one introductory or intermediate course in each of three subfields; at least three advanced courses (not incl ANTH 471, 472, 491, or seminar senior essay); up to 3 cognate courses in other departments or programs with DUS approval.

Senior requirement Senior essay in advanced sem; or ANTH 491; or yearlong essay in ANTH 471 or 472, along with ANTH 491; students electing a concentration may have additional requirements specific to that concentration

CONCENTRATIONS

Majors may choose to concentrate in one of the following areas to take advantage of groups of related courses and recommended sequences. Each of these concentrations has its own requirements and recommendations that fit within the overall requirements of the anthropology major.

CONCENTRATION IN ARCHAEOLOGY

The archaeology subfield focuses on understanding societies and cultures through the study of their material remains. Students in anthropological archaeology develop skills that will allow them to study sites that were inhabited or modified by people in the past (including sites from relatively recent or modern times), together with a variety of materials recovered at such places, from microscopic residues and chemical traces to monumental buildings and entire landscapes. They learn to develop and apply theoretical approaches from the social sciences and comparative data from ethnographic and historical sources, coupled with a growing range of scientific methods of analysis derived from the natural and biological sciences.

In addition, students should gain field experience by joining a summer field school. Many archaeological field schools are offered around the world, and students are encouraged to apply to the Albers or Coe fellowships to defer the costs. In special cases, laboratory or museum activities may substitute for field work with the approval of the DUS.

A concentration in Archaeology is similar to but also different from a major in Archaeological Studies. The Anthropology major with concentration in Archaeology provides a strong background in anthropological theory, ethnography, and biological anthropology, in addition to archaeology. The Archaeological Studies major is an option for students who wish to pursue coursework in additional departments, such as Classics and Classical Civilizations, Near Eastern Languages and Civilizations, and History of Art, among others. Alternatively, students can choose to double major in Anthropology and Archaeological Studies.

All students with this concentration need to complete at least six course credits as indicated. Senior majors with a concentration in Archaeology should consult with their senior thesis advisor to complete a thesis pertinent to the archaeology subfield (alternative formats for fulfilling this requirement can be discussed with the thesis advisor and DUS). Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements:

- **1 introductory survey course:** ANTH 171, ANTH 172
- **1 foundational laboratory course:** ANTH 316L
- **1 advanced laboratory or data analysis course:** use the attribute, YC ANTH: ARCG Adv Lab, to search for approved courses in YCS
- **1 theory course:** use the attribute, YC ANTH: ARCG Theory, to search for approved courses in YCS
- **1 seminar:** use the attribute, YC ANTH: ARCG Seminars, to search for approved courses in YCS
- **1 area focused course:** use the attribute, YC ANTH: ARCG Area Focused, to search for approved courses in YCS

CONCENTRATION IN BIOLOGICAL ANTHROPOLOGY

The concentration in Biological Anthropology helps students understand human evolutionary biology, comparative primate behavior and biology, evolutionary genetics, and the hominin and primate fossil records. Students will be knowledgeable about the fundamentals of evolutionary biology, mechanisms of evolution and population genetics, human and non-human primate behavioral ecology, life history and reproductive ecology, and the relationship of our species to other primates. They will be prepared to navigate research on human and non-human primates thoughtfully and ethically and will have a grounding in the principles of rigorous scientific research, quantitative reasoning, data analysis, data interpretation, and critical analysis of primary scientific literature.

The concentration in Biological Anthropology is distinguished from the major in Ecology and Evolutionary Biology by its focus on the evolutionary biology of humans and our primate relatives, including the use of genetics and endocrinology to address questions about both our evolution and our current world, and on the interplay of human biology and culture. Students are encouraged to gain solid scientific backgrounds by taking courses in related departments such as Ecology and Evolutionary Biology.

The concentration in Biological Anthropology overlaps with and complements the concentration in Medical Anthropology and Global Health in conceptual approaches and scientific methods. It complements the Department's Archaeology program by its coverage of the fossil and archaeological record for early human evolution and of the ecological, behavioral, and demographic context in which our own species emerged and successfully dispersed across the world. It complements the Sociocultural and Linguistic Anthropology program by providing a comparative context for understanding how our species then came to manifest our contemporary unprecedented behavioral diversity and flexibility.

All students with this concentration need to complete at least *six course credits* in biological anthropology or cognates, not including the senior project. Senior majors should consult with their senior thesis advisor to complete a thesis with an emphasis on the biological subfield. Essays written as term papers for seminars do not meet the senior requirement for this concentration. Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements:

- **Required course:** ANTH 116
- **4 or more biological anthropology seminar or cognate electives:** use the attribute, YC ANTH: BIOL Elective, to search for approved courses in YCS
- **At least 1 advanced seminar in biological anthropology:** use the attribute, YC ANTH: BIOL Adv Seminar, to search for approved courses in YCS

CONCENTRATION IN SOCIOCULTURAL ANTHROPOLOGY

A concentration in sociocultural anthropology engages students in the study of how different people live and understand the world, their aspirations and struggles, and how both shared and conflicting ideas, values, and interests are related to action and interaction in society. Study and research in sociocultural anthropology is grounded in wide-ranging social and cultural theory and takes ethnography to be a primary mode of research and a key form of expression (whether through ethnographic texts or other media, such as film). This concentration offers students an opportunity to focus on many parts of the world; on areas of inquiry such as environmental anthropology, urban anthropology, or economic anthropology; and on topics such as language, legal and political institutions, race and ethnicity, information, science, and technology, gender, sexuality, and the body, and more. Students completing a concentration in sociocultural anthropology will have excellent skills for interpreting cultural difference, understanding power and inequality, and connecting small-scale human lived experience with understandings of large-scale structures and transformations.

Students are encouraged to learn more about opportunities and sources of support for undergraduate research in anthropology.

Students in this concentration are also invited to explore the Certificate in Ethnography as a means to deepen and expand their interests in Sociocultural Anthropology through coursework in related academic units that engage with ethnographic methods and ethnography-informed scholarship, including (but not limited to): African American Studies, American Studies, Environmental Studies, Ethnicity, Race, and Migration (ER&M), History, History of Science and Medicine (HSHM), Political Science, Sociology, Urban Studies, and Women's, Gender, and Sexuality Studies (WGSS).

Note: The Anthropology Department does not offer an independent concentration in linguistic anthropology. Students interested in linguistic anthropology may concentrate in sociocultural anthropology and consult with the DUS and appropriate faculty about choosing courses most relevant to their interests.

There are *six required course credits* that may be applied to this concentration. With DUS approval, similar courses taught in the department, or a related department or program, may substitute. The senior requirement is not one of the concentration requirements; however, seniors should consult with their senior thesis advisor to complete a thesis emphasizing the sociocultural subfield. Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration requirements:

- **1 introductory course** in sociocultural anthropology at the 100 level; use the attribute, YC ANTH: SOCI Intro, to search for approved courses in YCS

- **2 or more electives in sociocultural and linguistic anthropology at the 200-400 level;** use the attribute, YC ANTH: SOCI Elective, to search for approved courses in YCS
- ANTH 303, the core research methods course, usually taken in the junior year. With DUS approval, a similar methods course taught in the Department, or a related department or program, may substitute.
- ANTH 311, the core theory course, usually taken in the junior year

CONCENTRATION IN MEDICAL ANTHROPOLOGY AND GLOBAL HEALTH

The concentration in Medical Anthropology and Global Health (MAGH) addresses the biological, ecological, economic, political, and sociocultural dimensions of health, illness, and healing around the world. It brings together theories, frameworks, and ethnographic foundations from sociocultural anthropology with biocultural orientations and research approaches found in biological anthropology. Students learn theoretical and methodological tools to think critically about issues related to health research, practice, and policy. They will address the biological, ethical, and sociocultural aspects of global health inequities, caregiving, medical and healing practices, technological innovations, and health interventions. The concentration encourages a mindful and critical look at how social conditions and inequalities shape the health and illness experiences of individuals, families, and populations. Students who choose a MAGH concentration may pursue further graduate academic study in medical anthropology, or careers in biomedical and health related fields, including epidemiology, global health, nursing, medicine, and public health. Others may be interested in health policy and legal aspects of health care delivery, among other fields.

All students with this concentration must complete *six course credits* in medical anthropology, global health, or cognate disciplines. In consultation with their adviser and/or the DUS, and especially if they plan independent research, students may wish to take an appropriate methods course as well. The senior requirement is not one of the concentration requirements; however, seniors should consult with their senior thesis advisor to complete a thesis emphasizing the medical anthropology or global health subfield. Courses other than those listed below or tagged with departmental attributes (in YCS) may count with permission of the DUS.

Concentration Requirements:

- ANTH 488 or ANTH 548
- **at least 1 seminar at the 300- or 400- level that supports their preparation for the senior essay** and 4 other electives: use the attribute, YC ANTH: Medical Elective, to search for approved courses in YCS

FACULTY OF THE DEPARTMENT OF ANTHROPOLOGY

Professors †Claire Bown, Richard Bribiescas, Richard Burger, †Michael Dove (*Environmental Studies*), Kathryn Dudley (*American Studies*), J. Joseph Errington (*Emeritus*), Eduardo Fernandez-Duque, †Inderpal Grewal (*Emeritus*), Erik Harms, Marcia Inhorn (*Modern Middle East Studies*), William Kelly (*Emeritus*), Paul Kockelman, Roderick McIntosh (*Emeritus*), Catherine Panter-Brick, Douglas Rogers (*Chair*), Eric Sargis, James Scott (*Emeritus*), Helen Siu, Kalyanakrishnan Sivaramakrishnan, Anne Underhill, Claudia Valeggia, David Watts

Associate Professors Oswaldo Chinchilla, William Honeychurch, Yukiko Koga, Louisa Lombard

Assistant Professors Lisa Messeri, Jessica Thompson, Serena Tucci

Senior Lecturer †Carol Carpenter

Lecturer Jane Lynch

†A joint appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

Applied Mathematics

Director of undergraduate studies: John Wettlaufer (john.wettlaufer@yale.edu), Rm. 109 KGL, 432-0892

Mathematical models are widely used throughout natural science, social science, and engineering in fields as diverse as physics, bioinformatics, robotics, image processing, and economics. Despite the broad range of mathematical settings and applications, there exists a core of essential concepts and techniques used in addressing most problems. The Applied Mathematics major provides a foundation in these mathematical techniques and prepares the student to use them in a substantive field of application.

The interdisciplinary major permits a great deal of flexibility in design. It is intended to appeal to students who wish to study the more mathematical aspects of science or engineering, as well as those whose primary interest is in mathematics and statistics and who wish to become acquainted with applications. Core courses are drawn from Computer Science, Mathematics, Statistics and Data Science, and Engineering and Applied Science. Courses applying mathematics may be drawn from participating programs in Applied Physics; Astronomy; the biological sciences, including Ecology and Evolutionary Biology, Molecular Biophysics and Biochemistry, and Molecular, Cellular, and Developmental Biology; Chemistry; Economics; the various programs in engineering, including Biomedical Engineering, Chemical Engineering, Electrical Engineering, Environmental Engineering, and Mechanical Engineering; Earth and Planetary Sciences; Physics; and even Linguistics and Political Science. The Applied Mathematics degree program requires a three-course concentration in a field in which mathematics is used.

Students in the major are often sought after by graduate programs in either Applied Mathematics or in the disciplines in which they choose their concentration, as well as by industries and startup companies in which their breadth of quantitative skills are essential and often unique.

Students may pursue a major in Applied Mathematics as one of two majors and can thereby equip themselves with mathematical modeling skills while being fully engaged in a field of application. In this case, the concentration requirement of the Applied Mathematics program is flexible in order to recognize the contribution of the other major. A two-course overlap is permitted in satisfying the requirements of the two majors.

Frequently Asked Questions Students are encouraged to consult the Applied Mathematics FAQ for more detail about courses and policies in the major.

PREREQUISITE AND INTRODUCTORY COURSES

Multivariable calculus and linear algebra are required and should be taken before or during the sophomore year. This requirement may be satisfied by MATH 120 or ENAS 151, and MATH 222 or 225 or 226. It may also be satisfied by MATH 230, 231 for the Class of 2024 and 2025 (see below). Computer programming skills are also required and may be acquired by taking ENAS 130, CPSC 100, or 112. Details of individual

programs must be worked out in consultation with the director of undergraduate studies (DUS), whose signed permission is required.

REQUIREMENTS OF THE MAJOR

Students in the Class of 2024 and Class of 2025 may count MATH 230, 231 (linear algebra), MATH 250 (vector analysis), and MATH 300 and 301 (analysis) toward their analysis requirements.

Students in the Class of 2026 and subsequent classes follow the requirements as listed.

The B.A. degree program The program requires eleven term courses beyond the prerequisites, including the senior project, comprising a coherent program:

1. A course in differential equations (ENAS 194 or MATH 246)
2. A course in probability (S&DS 241 or S&DS 238)
3. A course in data analysis (S&DS 361 or S&DS 230)
4. A course in discrete mathematics (AMTH 244 or CPSC 202)
5. Courses in at least three of the following areas* including, but not limited to:
 - (a) optimization: AMTH 437, EENG 400, CPSC 485
 - (b) probability and statistics: S&DS 242, 312, 351, 364, 400, 410, 411, 425, ECON 136, APHY 470
 - (c) partial differential equations and analysis: MATH 247, 250, 255, 256, 260, 300, 301, 302, 305, 310, 447, AMTH 428
 - (d) algorithms and numerical methods: CPSC 365, 366, 424, 440, 465, 467, 468, 469, ENAS 440, 441
 - (e) graph theory: AMTH 562, ENAS 962
 - (f) mathematical economics: ECON 125, 126, 350, 351, 417, 433, 460, 471
 - (g) electrical engineering: EENG 397, 436, 455, AMTH 342, S&DS 364
 - (h) data mining and machine learning: S&DS 262, 365, 669, 671, CPSC 445, 453, 470, 474, 477, 486, 745, AMTH 552
 - (i) biological modeling and computation: CPSC 453, 475, 476, BENG 352, 445, 458, ENAS 559
 - (j) physical sciences: ASTR 320, 420, CHEM 333*^{*}, EPS 322, 323, 421, 428, 456, PHYS 342, 343, 344, 401, 402, 410, 420, 430, 440, 442, 460, APHY 439, 448
 - (k) engineering: MENG 280, 285, 361, 365, 383, 463, 469, CENG 301, 315
 - (l) mathematical linguistics: LING 224, 227, 380
 - (m) mathematical philosophy: PHIL 267, PHIL 427, MATH 270

* Because departmental curricula from which the program draws regularly change, the DUS maintains a more exhaustive list of courses and areas satisfying this particular requirement. Additionally, due to rapid advances in many areas, these categories are

often fluid, and their union can evolve. In order to accommodate this fluidity, students are strongly encouraged to revisit their program of study each term and share their checklist with the DUS. Students can independently and systematically plan multiple routes toward completion of the major by using the checklist and the master list of courses.

** Chemistry courses numbered 410 and above may count as a breadth requirement (either 1 full-term 1 credit course or 2 half-credit courses) with permission of the DUS.

6. At least *three advanced courses* in a field of concentration involving the application of mathematics to that field. Programs in science, engineering, computer science, statistics, and economics are natural sources of concentration. Alternatively, when two majors are undertaken, if the second major is in a participating program, then, recognizing that there can be an overlap of two courses, the student may take for the remaining course an additional choice relevant to the Applied Mathematics major such as those listed in point 5 above or for the B.S. below. Details of a student's program to satisfy the concentration requirement must be worked out in consultation with, and approved by, the DUS.

The B.S. degree program In addition to the courses indicated for the B.A. degree, the B.S. degree, which totals fourteen term courses beyond the prerequisites and including the senior requirement, must also include the three items listed below.

1. A vector analysis course, (MATH 302 or MATH 305). MATH 310, 320, 325, and 447 and those courses listed under "(c) partial differential equations and analysis" can act as replacements for MATH 250, 300, 301 and/or act as concentration or breadth courses.

The course selected may not be counted toward the requirements for the major under item 5 above. (MATH 350 and MATH 440 can in specific cases be considered in consultation with the DUS.)

2. An additional course selected from item 5 above.

3. Another course numbered 300 or higher selected from item 5 above, or a course numbered 300 or higher in mathematics, applied mathematics, statistics, or quantitative computer science or engineering, subject to the approval of the DUS.

Alternatively, students may petition to receive a B.S. in Applied Mathematics by fulfilling the B.A. requirements in Applied Mathematics and the B.S. requirements in another program.

Credit/D/Fail A maximum of one course credit taken Credit/D/Fail may be counted toward the requirements of the major.

SENIOR REQUIREMENT

Both the B.A. and B.S. degree programs require a senior thesis research project (AMTH 491).

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or ENAS 151, and MATH 222 or 225 or 226, or equivalents; ENAS 130, CPSC 100, or 112

Number of courses *B.A.* – 11 term courses beyond prereqs (incl senior req); *B.S.* – 14 term courses beyond prereqs (incl senior req)

Specific courses required *B.A.* – ENAS 194 or MATH 246; S&DS 241 or S&DS 238; S&DS 361 or S&DS 230; AMTH 244 or CPSC 202; *B.S.* – same as *B.A. degree*

Distribution of courses *B.A.* – at least 3 advanced courses in a field of concentration concerning the application of math to that field; 3 addtl courses, as specified; *B.S.* – same as *B.A. degree*, plus MATH 302 or 305 (or MATH 350 and 440 with DUS approval), with 2 addtl courses, as specified

Senior requirement Senior thesis research project (AMTH 491)

FACULTY ASSOCIATED WITH THE PROGRAM OF APPLIED MATHEMATICS

Professors Andrew Barron (*Statistics & Data Science*), David Bercovici (*Earth & Planetary Sciences*), Donald Brown (*Emeritus*) (*Economics, Mathematics*), Joseph Chang (*Statistics & Data Science*), Ronald Coifman (*Mathematics*), Michael Fischer (*Computer Science*), Igor Frenkel (*Mathematics*), Anna Gilbert (*Mathematics, Statistics & Data Science*), Roger Howe (*Emeritus*) (*Mathematics*), Peter Jones (*Mathematics*), John Lafferty (*Statistics & Data Science*), A. Stephen Morse (*Electrical Engineering*), Corey O'Hern (*Mechanical Engineering & Materials Science*), David Pollard (*Statistics & Data Science*), Nicholas Read (*Physics, Applied Physics*), Vladimir Rokhlin (*Computer Science, Mathematics*), John Schotland (*Mathematics*), Peter Schultheiss (*Emeritus*) (*Electrical Engineering*), Martin Schultz (*Emeritus*) (*Computer Science*), Mitchell Smooke (*Mechanical Engineering & Materials Science, Applied Physics*), Daniel Spielman (*Computer Science, Statistics & Data Science*), Mary-Louise Timmermans (*Earth & Planetary Sciences*), Van Vu (*Mathematics*), Günter Wagner (*Ecology & Evolutionary Biology*), John Wettlaufer (*Earth & Planetary Sciences, Mathematics, Physics*), Huibin Zhou (*Statistics & Data Science*), Steven Zucker (*Computer Science, Biomedical Engineering*)

Associate Professors John Emerson (*Statistics & Data Science*), Thierry Emonet (*Molecular, Cellular, & Developmental Biology, Physics*), Josephine Hoh (*Epidemiology & Public Health*), Yuval Kluger (*Pathology*), Michael Krauthammer (*Pathology*), Smita Krishnaswamy (*Genetics, Computer Science*), Sekhar Tatikonda (*Electrical Engineering, Statistics & Data Science*), Madhusudhan Venkadesan (*Mechanical Engineering & Materials Science*)

J. W. Gibbs Assistant Professors Yariv Aizenbud, Abinand Gopal, Erik Hiltunen, Boris Landa, Kevin O'Neill

Applied Physics

Director of undergraduate studies: Daniel Prober (daniel.prober@yale.edu), 417 BCT, 432-4280; appliedphysics.yale.edu

Physics is the study of the fundamental laws of nature. Applied physics uses these laws to understand phenomena that have practical applications. Engineering in turn makes use of these phenomena for human purposes. Applied physics thus forms a link between the fundamental laws of nature and their applications. Students majoring in Applied Physics take courses in both physics and engineering, as well as courses specifically in applied physics. Students completing the program in Applied Physics are prepared for graduate study in applied physics, in physics, in nanoscience, or in engineering, and, with appropriate prerequisites, in medicine; or they may choose careers in a wide range of technical and commercial fields, or in fields such as technical writing or patent law that draw on interdisciplinary subjects.

Contemporary physical science and engineering are becoming increasingly interdisciplinary. Traditional boundaries between fields have blurred, and new areas are constantly emerging, e.g., nanotechnology. The Applied Physics major provides a flexible framework on which students can build a curriculum tailored to their own interests, in consultation with the director of undergraduate studies (DUS).

PREREQUISITES

During their first year, students interested in Applied Physics should start by taking courses in mathematics, and in physics if possible, appropriate to their level of preparation. The choice between different starting points is generally made on the basis of performance on Advanced Placement tests. The multiplicity of choices facing students interested in this general area indicates the importance of informed advice for first-year students. Students should consult freely with DUSes and individual faculty members in their departments of interest to optimize choices and to ensure maximum flexibility at the time a major is selected.

The required prerequisites for students interested in Applied Physics include two physics courses and one physics lab; APHY 151 or MATH 120; and PHYS 301 (or APHY 194 with either MATH 222 or MATH 225 or MATH 226).

The recommended starting courses in physics are PHYS 200 and 201. These courses should be taken in the first year by students who have a strong preparation in mathematics and physics. Students with a particularly strong background in physics and mathematics may take PHYS 260 and 261 instead. Students who are less well prepared in physics and mathematics may choose to take PHYS 180 and 181 during their first year, or PHYS 200 and 201 during their sophomore year after they have taken more mathematics courses. One laboratory course, PHYS 166L or 206L, should be taken at some time during the first or second year.

REQUIREMENTS OF THE MAJOR

The major in Applied Physics requires eight courses beyond the introductory sequence. Two of these must be APHY 471 and 472. All majors are also required to take APHY 322, APHY 439 or PHYS 440, and APHY 420, or equivalents. The three remaining advanced courses should focus on a particular area of concentration. For example, a student

interested in solid-state and/or quantum electronics might choose from APHY 321, 448, 449, EENG 320, and 325. A student interested in the physics of materials and/or nanoscience might choose from APHY 448, 449, CHEM 220, and MENG 285. Many other concentrations are possible.

Credit/D/Fail All courses required for the major, beyond the prerequisites, must be taken for a letter grade, with the single exception that one such course may be taken Credit/D/Fail with permission of the DUS. The senior special projects, APHY 471 and 472, may only be taken for a letter grade.

SENIOR REQUIREMENT

Seniors must complete an independent research project, taken as APHY 471 and 472. The independent research project is under the supervision of a faculty member in Applied Physics, Physics, Engineering, or related departments. The project may be started in the junior year and continued into the senior year. Students planning to do a research project should contact the DUS as early as possible to discuss available options and general requirements.

ADVISING

The Applied Physics major provides for various programs corresponding to a range of student interests. Substitutions of equivalent courses may be permitted. Students interested in an Applied Physics major should contact the DUS as early as possible, and in any case by the end of their sophomore year.

A well-prepared student interested in materials physics or quantum electronics who starts the senior research in the junior year might elect the following course sequence:

First-Year	Sophomore	Junior	Senior
APHY 151	APHY 322	APHY 472	APHY 448
PHYS 200	APHY 439	EENG 320	APHY 449
PHYS 201	PHYS 301	APHY 420	APHY 471
PHYS 206L			

A student interested in alternative energy who starts physics in the sophomore year and conducts research in the senior year might elect:

First-Year	Sophomore	Junior	Senior
MATH 120	PHYS 200	APHY 322	APHY 448
	PHYS 201	APHY 439	APHY 471
	PHYS 206L	EENG 320	APHY 472
	PHYS 301	APHY 420	EENG 406

REQUIREMENTS OF THE MAJOR

Prerequisites PHYS 180, 181, or 200, 201, with appropriate math coreqs and PHYS 166L or 206L; APHY 151 or MATH 120; PHYS 301 (or APHY 194 with either MATH 222 or MATH 225 or MATH 226)

Number of courses 8 term courses beyond prereqs (incl senior req)

Distribution of courses 3 adv courses in physical or mathematical sciences or engineering in area of concentration, with DUS approval

Specific courses required APHY 322, APHY 439 or PHYS 440, and APHY 420, or equivalents

Substitution permitted Any relevant course approved by DUS

Senior requirement APHY 471 and 472

FACULTY OF THE DEPARTMENT OF APPLIED PHYSICS

Professors Charles Ahn, †Sean Barrett, Hui Cao, Michel Devoret, Paul Fleury (*Emeritus*), †Steven Girvin, †Leonid Glazman, †Jack Harris, Victor Henrich (*Emeritus*), Sohrab Ismail-Beigi, Simon Mochrie, †Corey O'Hern, Vidvuds Ozolins, Daniel Prober, Nicholas Read, Peter Schiffer, Robert Schoelkopf, †Ramamurti Shankar, †Mitchell Smooke, A. Douglas Stone, †Hongxing Tang, Robert Wheeler (*Emeritus*), Werner Wolf (*Emeritus*)

Associate Professors †Michael Choma, Peter Rakich

Assistant Professors Yu He, Owen Miller, Shruti Puri

†A joint appointment with primary affiliation in another department.

Archaeological Studies

Director of undergraduate studies: Oswaldo Chinchilla
(oswaldo.chinchilla@yale.edu), 51 Hillhouse Ave., Rm. 301,
436-5923, archaeology.yale.edu

This interdisciplinary major is supervised by the University's Council on Archaeological Studies. Inquiries about the major may be addressed to the chair of the council, Richard Burger (richard.burger@yale.edu), Department of Anthropology, 10 Sachem St., or to the director of undergraduate studies (DUS).

The major in Archaeological Studies provides a program of interdepartmental offerings covering prehistoric, early historic, medieval, and other cultures and cultural developments in the Old and New Worlds, and introduces students to the analytic tools that facilitate archaeological studies. The major is designed to expose students to a variety of archaeological research perspectives: anthropological, historical, art historical, and scientific. Also emphasized are substantive studies including (1) study of such prehistoric–early historic transformations as the origins of agriculture, cities and states, and early empires, and (2) study of the material culture, art, and architecture of prehistoric, early historic, and medieval cultures, including the iconography of ancient cultures, the relationship between art and society, ancient writing systems, and American historical archaeology.

REQUIREMENTS OF THE MAJOR

The major consists of twelve term courses, including the senior project. In addition, students must participate in a Yale-affiliated summer research project, or that of another archaeological field school approved in advance by the DUS. The following five courses are required: an introductory survey; the introductory laboratory course ARCG 316L; an advanced laboratory course; a theory course; and the senior research project ARCG 491. The remaining seven courses required for the major must be distributed among the subject areas represented by the departments and programs offering courses multiple-titled with Archaeological Studies, with three of those seven courses falling in different departments and programs. The relevant departments and programs are Anthropology, Classics, Earth and Planetary Sciences, Environmental Studies, History, History of Art, Near Eastern Languages and Civilizations, and Religious Studies. With the permission of the DUS, a course may be counted toward a subject area other than the one(s) under which it is listed. For three of the seven archaeology electives students may, with permission of the DUS, substitute courses from other departments in areas related to their research.

Field research In addition to being the base for several faculty field projects around the globe, the Council on Archaeological Studies takes as its principal mission the encouragement of multiple field experiences. Our undergraduate majors are required to participate in at least one intensive summer field school. Approval is required, and costs are often subsidized by the Council. Students are encouraged to participate in each other's field projects, thereby learning about the greatest number of cultures and areas possible, while experiencing a diverse array of field situations.

Students are strongly encouraged, but are not required, to devote a second summer to archaeological research, either in the field or in a laboratory. Members of the Council

faculty currently direct archaeological field projects in China, Egypt, Guatemala, Peru, Mongolia, Senegal, Armenia, and Italy. Qualified majors are encouraged to apply for research positions with these projects.

SENIOR REQUIREMENT

The final requirement for the major is a senior research project (ARCG 491) in some field of archaeology, preferably one involving more than one area or discipline.

ADVISING

Students majoring in Archaeological Studies should consult with the DUS at the beginning of each term.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior project)

Specific course required ARCG 316L (intro lab)

Distribution of courses 1 intro survey; 1 advanced lab; 1 theory course; 7 electives, at least 1 in each of 3 areas, as specified

Field requirement 1 summer field techniques course or research project, as specified and approved by the DUS

Substitution permitted For 3 electives, 3 courses related to research, with DUS permission

Senior requirement Research project (ARCG 491)

COUNCIL ON ARCHAEOLOGICAL STUDIES

Anthropology Richard Burger (*Chair*), Oswaldo Chinchilla, Ellery Frahm, William Honeychurch, Roderick McIntosh, Eric Sargis, Jessica Thompson, Anne Underhill, David Watts

Classics Andrew Johnston, Diana Kleiner (*Emeritus*)

Earth and Planetary Sciences Ronald Smith

History Joseph Manning

History of Art Edward Cooke, Jr., Milette Gaifman

Near Eastern Languages & Civilizations John Darnell, Karen Foster, Eckart Frahm, Gregory Marouard, Nadine Moeller, Harvey Weiss

Religious Studies Stephen Davis

Architecture

Director of undergraduate studies: Michael Schlabs (michael.schlabs@yale.edu), RDH, 180 York St.; architecture.yale.edu

Architecture is a humanistic endeavor. The purpose of the undergraduate major is to include the study of architecture within a comprehensive liberal arts education, drawing from the broader academic and professional environment of the Yale School of Architecture. The curriculum includes work in design; in history, theory, and criticism of architecture; and in urbanism, and leads to a bachelor of arts degree with a major in Architecture. As a liberal arts major in Yale College, it is not an accredited professional degree program. For accredited professional degree programs, refer to the requirements of the National Architectural Accrediting Board (NAAB).

INTRODUCTORY COURSES FOR NONMAJORS AND MAJORS

Introductory courses are ARCH 150, 200, and 280. They are open to all Yale College students and are required for those interested in the Architecture major prior to submitting a Declaration of Intent to Major. Interested students may also consider courses such as ARCH 154, 160, 260, 312, or 345.

PREREQUISITES

Three courses are prerequisite for all concentrations: ARCH 150, 200, and 280.

REQUIREMENTS OF THE MAJOR

Students majoring in Architecture are required to take fifteen course credits, including prerequisites and the senior requirement. Majors are expected to take the three prerequisites by the end of their sophomore year and to complete a core of four courses, for five course credits, by the end of their junior year. They must also base their studies in one of two areas of concentration: the Design concentration or the History, Theory, Criticism of Architecture, and Urbanism concentration. Majors are also required to complete three orientation sessions: advanced technology orientation, library orientation, and shop orientation. Within the concentrations, electives are categorized under four broad subject areas: history and theory of architecture and the city; urbanism and landscape; materials and design; and structures and computation.

Students in the Class of 2024 may continue to concentrate in the Urbanism concentration.

Design concentration The Design concentration explores the role of architecture in shaping the world around us. It introduces complex processes involved in solving spatial and programmatic problems. Creative work is grounded in the study of history and culture, and in the analysis of social conditions influencing architecture. Design studios provide a forum for production and discourse. Studio projects address issues of architectural form, space, composition, site, tectonics, and programs within broader humanistic ideals.

For the Design concentration, the following additional courses are required:

1. A core of four courses: the studio courses ARCH 250 and 251 taken during the junior year after the student is accepted into the major; and the history of

architecture surveys, ARCH 260 and 312, to be completed by the end of the junior year

2. One elective in history and theory of architecture as outlined in the elective options below
3. One elective in urbanism and landscape as outlined in the elective options below
4. One elective in materials and design as outlined in the elective options below
5. One elective in structures and computation as outlined in the elective options below
6. The senior requirement, ARCH 450 and 494

History, Theory, Criticism of Architecture, and Urbanism concentration The History, Theory, Criticism of Architecture, and Urbanism concentration is intended to establish a broad historical and intellectual framework for the study of architecture and the city. An interdisciplinary approach is encouraged through additional courses taken in various fields of humanities and social sciences. Such courses may include archaeology, urban studies, aesthetics, philosophy, or visual culture. Permission of the director of undergraduate studies (DUS) is required if the courses fall outside the specified course of studies. During their senior year students complete a senior essay or project on a topic approved by the faculty.

For the History, Theory, Criticism of Architecture, and Urbanism concentration, the following additional courses are required:

1. A core of four courses: the urban laboratory, ARCH 250 or 360 taken during the fall term of junior year; ARCH 362 or an elective taken during the spring term of junior year; and the history of architecture surveys ARCH 260 and 312 to be completed by the end of junior year
2. Four electives in history and theory of architecture and the city as outlined in the elective options below
3. One elective in urbanism and landscape, materials and design, or structures and computation or other relevant course approved by the DUS as outlined in the elective options below
4. The senior requirement, ARCH 490 and 491

ELECTIVE OPTIONS IN SUBJECT AREAS

History and theory of architecture and the city Electives can be chosen from ARCH 006, 271, 272, 314, 316, 327, 332, or other relevant courses in History of Art and other, related fields approved by the DUS. Examples of approved courses include: HSAR 143, 160, 221, 260, and 432

Urbanism and landscape Electives can be chosen from ARCH 006, 160, 314, 316, 324, 327, 341, 345 or other relevant courses in American Studies; Ethics, Politics, and Economics; Environmental Studies; or Political Science approved by the DUS. Examples include: AFAM 297, 358, 450; AFST 235, 345; AMST 258, 348; ANTH 414; ENAS 425; ER&M 293; EVST 196, 227, 255, 292, SOCY 341 and 584

Materials and design Electives can be chosen from ARCH 154, 162, 325, 332 or another relevant course approved by the DUS. Examples include: ART 110, 123, 130, and 210

Structures and computation Electives can be chosen from ARCH 161, an approved calculus course such as MATH 112, 115, 120, or physics course such as PHYS 180, 201, PHYS 280, or other relevant course approved by the DUS. One example of an approved course is MENG 280. (Elementary calculus is strongly recommended as preparation for graduate studies in architecture.)

REQUIRED ORIENTATIONS

Advanced Technology orientation All Architecture students are required to complete orientation sessions in advanced technology workshop and materials laboratory. Students enrolled in ARCH 200 are required to complete these sessions at the beginning of the spring term of the sophomore year. Access to digital media equipment is not allowed until the required orientation sessions have been completed. Questions should be addressed to the DUS or the director of advanced technology, Vincent Guerrero (vincent.guerrero@yale.edu), 432-7552.

Library orientation The Architecture program requires all students to complete a ninety-minute introductory library research session. Students enrolled in ARCH 200 must take this session at the beginning of the spring term of the sophomore year. Failure to complete the required orientation precludes completion of the major. Students may not offer substitutions for this orientation. Students should register with the Haas Family Arts Library Public Services Librarian, Lindsay King (lindsay.king@yale.edu), 436-8052. Questions should be addressed to the DUS.

Shop orientation The Architecture program requires all majors to complete several woodshop and materials lab orientation sessions. Students who plan to enroll in ARCH 250 must take these sessions at the beginning of fall term in the junior year, before the first day of classes. Access to the woodshop and materials lab is not allowed until the required orientation sessions have been completed. Questions should be addressed to the DUS or to the shop coordinator, Timothy Newton (timothy.newton@yale.edu), 432-7234.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Architecture major.

SENIOR REQUIREMENT

Seniors in the Design concentration take ARCH 450 in the fall term and 494 in the spring term. Seniors in the History, Theory, Criticism of Architecture, and Urbanism concentration take ARCH 490 in the fall term and 491 in the spring term. Proposals for senior projects and essays are submitted in the fall term for review and approval by the senior project coordinator; they are then distributed to faculty members for review. Upon successful review, students may ask faculty members to act as senior advisers. Senior essays and projects for ARCH 491 are due in the office of the DUS by early April. Design projects for ARCH 494 are due as specified by the course instructor. All seniors must submit a portfolio of their work to the office of the DUS by late April. For all architecture majors, this portfolio must be representative of the student's design work including prerequisites and the senior project. History, Theory, Criticism of Architecture, and Urbanism majors must also include a copy of the senior essay and other appropriate texts.

ADVISING AND DECLARATION OF INTENT TO MAJOR

Yale College students interested in the Architecture major must submit a Declaration of Intent to Major during the spring term of their sophomore year, after taking ARCH 150, 200, and 280. The Declaration of Intent to Major form must be submitted to the office of the DUS (contact DUS for deadlines) and must include the following information: name, address, telephone number, courses related to architecture already taken, and a statement of purpose. Students should also indicate their desired concentration at this time. Additionally, students must submit an electronic portfolio representative of coursework for ARCH 150, 200, and a paper from ARCH 280. Upon the successful completion of these requirements, students are notified in writing regarding their acceptance to the major. Refer to the department website for important deadlines.

Courses in the School of Architecture Unless otherwise indicated in the course descriptions, all courses in the School of Architecture are open to majors and nonmajors with permission of the instructor and the graduate registrar. They are not available for the Credit/D/Fail option. Students are admitted on the basis of their previous coursework and previous performance.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites ARCH 150, 200, and 280

Number of courses 15 course credits (incl prereqs and senior req)

Specific courses required *Design*—ARCH 250, 251, 260, 312; *History, Theory, Criticism of Architecture, and Urbanism*—ARCH 250 or 360; ARCH 362 or elective; ARCH 260; and ARCH 312

Distribution of courses *Design*—1 elective in history and theory of arch, 1 in urbanism and landscape, 1 in materials and design, 1 in structures and computation, all approved by DUS; *History, Theory, Criticism of Architecture, and Urbanism*—4 electives in history and theory of arch and city, 1 elective in urbanism and landscape, or materials and design, or structures and computation; all approved by DUS.

Other requirements Orientation sessions in advanced technology, library, and shop

Senior requirement *Both concentrations*—portfolio representative of design work, including prereqs and senior req; *Design*—ARCH 450 and 494; *History, Theory, and Criticism of Architecture and Urbanism*—ARCH 490 and 491

MEMBERS OF THE SCHOOL OF ARCHITECTURE TEACHING IN YALE COLLEGE

Professors Turner Brooks (*Adjunct*), Keller Easterling, Steven Harris (*Adjunct*), Eeva-Liisa Pelkonen, Alan Plattus, Alexander Purves (*Emeritus*)

Associate Professors Kyoung Sun Moon, Elihu Rubin

Assistant Professors Anthony Acciavatti (*Visiting*), Sunil Bald (*Adjunct*), Joyce Hsiang, Bimal Mendis (*Adjunct*)

Senior Lecturers Marta Justo Caldeira, Bryan Fuermann

Lecturers Kyle Dugdale, Jerome Haferd, Erleen Hatfield, Justin Moore

Senior Critics Katherine Davies, Andrei Harwell, Gavin Hogben

Critics Anne Barrett, Adam Hopfner, George Knight, Timothy Newton, M. Surry
Schlabs

Art

(Drawing, Filmmaking, Graphic Design, Painting/Printmaking, Photography, and Sculpture)

Director of undergraduate studies: art.dus@yale.edu, (art.dus@yale.edu) 122 GRN, 432-2600; art.yale.edu

Students in the Art major develop a critical and practical understanding of the visual arts and design through a studio-based curriculum that organically blends practice with critical thinking and art historical precedents; apply fundamentals of visual art across a variety of mediums and disciplines; relate the practice of making art and design to culture and the study areas of art history and theory; and learn to embody the knowledge and practice of at least one artistic discipline through active search and research. Students may concentrate on a medium such as painting/printmaking, sculpture, graphic design, photography, or filmmaking, and interdisciplinary study is supported. Art majors learn to place their own work in the context of an inclusive group of contemporary art worlds and national and global cultures. This study is a crucial element in a liberal arts curriculum both for future arts practitioners and for those ultimately studying and working in other fields. A key element of the creative learning process is the critique, which is implemented via both group settings and one-on-one studio visits with faculty and visiting critics. Through rigorous practice and regular feedback, a student gains insight into one's own critical voice. Art majors have access to the graduate program by attending regular lectures, critiques, events, and exhibitions that represent a diverse set of art practitioners who regularly visit the School of Art.

COURSES FOR NONMAJORS AND MAJORS

Courses in Art are open to all undergraduate students, but are registered by permission of instructor only due to limited class size. In cases where student demand for entry into a course is greater than can be accommodated, priority is given to School of Art students and declared Art and CPAR majors. The director of undergraduate studies (DUS) and members of the Art faculty typically hold counseling meetings during the registration period. See the Art department website listed above for more information. Students seeking advice about course selection or the program in Art should attend these advising sessions. Others wishing to elect an Art course should visit the course's Canvas site for details, and request instructor permission during the registration period to apply for these limited-enrollment classes. Many studio art courses require the purchase of a limited number of supplies in addition to those materials provided in the class. All Art majors are required to register with the DUS at the beginning of each term in order to be enrolled or to continue in the major, as well as participate in the sophomore review in the fourth term.

PREREQUISITES

The prerequisites for acceptance into the major are the sophomore review, which is an intensive advising session and evaluation of work from studio courses taken at the Yale School of Art, and five introductory courses (courses numbered 001–199). Four of the introductory courses must have been completed at the time of the sophomore review. Visual Thinking (ART 111) and Basic Drawing (ART 114) are mandatory, and may not be waived. At the time of the review, the student should be enrolled in the fifth 100-

level prerequisite course. In exceptional cases, arrangements for a special review during the junior year may be made with the DUS.

REQUIREMENTS OF THE MAJOR

The Art major requires fourteen courses, including the following: (1) five prerequisite courses at the Introductory level numbered 001–199 (including ART 111 and ART 114); (2) four courses at the 200 level or above; (3) the Junior Seminar (ART 395); (4) the two-term senior project (ART 495 and ART 496); and (5) two courses in the history of art, or DUS-approved equivalent. A student who has completed five courses numbered 001–199 may count a sixth such course towards the 200-level course requirement. Program guidelines and specific requirements for the various areas of concentration are described below.

Students in the Class of 2024 may substitute ART 301 for 395.

Areas of concentration Each Art major selects an area of concentration from five possible choices: (1) graphic design, (2) painting/printmaking, (3) photography, (4) sculpture, and (5) filmmaking. Suggested courses for the *graphic design concentration* are: ART 132, 264, 265, 266 or 368; ART 369 or 370; and ART 468 or 469. Specific courses recommended for the *painting/printmaking concentration* are ART 116, 130, 331 or 332; ART 224, 245 or 356; and ART 421, 432, 433 or 457. Students in the *photography concentration* should take ART 136 and/or 138; ART 237 and/or 239; ART 337 or 338; ART 379 and 401. The *sculpture concentration* recommends 2 of the following: ART 110, 120, 121, 122 or 123; and 3 of the following: ART 210, 346, 348, 371 or 446. Required courses for the *filmmaking concentration* are ART 142, 341, 342, and ART 442 or 443. Students in the filmmaking concentration may substitute two non-production courses in Film and Media Studies for the history of art requirement, and the same for other concentrations only with permission of the DUS. Students wishing to work interdisciplinarily should consult with the DUS.

Credit/D/Fail Courses taken Credit/D/Fail may be counted toward the requirements of the major.

SENIOR REQUIREMENT

The senior requirement consists of a two-term senior project, ART 495 and ART 496.

UNIQUE TO THE MAJOR

Summer fellowship Art majors are eligible to apply for the Ellen Battell Stoeckel Fellowship for study at the Yale University Summer School of Music and Art in Norfolk, Connecticut. Applicants for the program must be officially classified as junior Art majors and be returning to Yale for two terms of their senior year. The program awards up to three course credits for work successfully completed. These credits cannot be used toward the requirements of the Art major; however, they may be counted toward the 36-course-credit graduation requirement.

Repeated and outside courses Some Art courses may be repeated for credit, with permission of both the instructor and the DUS. Course credits in studio art earned at other institutions may, in some cases, be applied toward the requirements of the major, but not to replace the two prerequisites, and is done solely at the discretion of the DUS and subject to a faculty review process.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites Favorable faculty review of work done in studio courses before end of sophomore year; ART 111 and 114; 3 addtl courses numbered 001–199

Number of courses 14 courses (incl prereqs and yearlong senior project)

Specific courses required *All concentrations*—ART 395 or 301; *Graphic design*—ART 132, 264, 265, 266 or 368; ART 369 or 370; and ART 468 or 469; *Painting/printmaking*—ART 116, 130, 331 or 332; ART 224, 245 or 356; and ART 421, 432, 433 or 457; *Photography*—ART 136 and/or 138; ART 237 and/or 239; ART 337 or 338; ART 379, 401; *Sculpture*—any 2 of ART 110, 120, 121, 122 or 123; and any 3 of ART 210, 346, 348, 371, or 446; *Filmmaking*—ART 142, 341, 342; ART 442 or 443

Distribution of courses 4 courses at 200 level or above; 2 courses in hist of art

Senior requirement Two-term senior project (ART 495, 496)

Substitution permitted *Filmmaking concentration*—2 courses in Film and Media Studies may be substituted for the hist of art req

MEMBERS OF THE SCHOOL OF ART TEACHING IN YALE COLLEGE

Professor Martin Kersels

Associate Professor Meleko Mokgosi

Senior Critics Julian Bittiner, Sandra Burns, Alice Chung, Benjamin Donaldson, Pamela Hovland, Matthew Keegan, Lisa Kereszi, Sophy Naess, Christopher Pullman, A.L. Steiner, Sarah Stevens-Morling, Elizabeth Tubergen, Henk Van Assen

Critics Beverly Acha, Michel Auder, Yeju Choi, Rachelle Dang, Maria de Los Angeles, Neil Goldberg, Halsey Rodman, Karin Schneider, Douglass Scott, Alexander Valentine, Anahita Vossoughi, Molly Zuckerman-Hartung

Lecturers Jonathan Andrews, American Artist, Elena Bertozzi, Nathan Carter, Luiza Dale, Luchina Fisher, Ben Hagari, Shira Inbar, Hasabie Kidanu, Desmond Lewis, Jesse Marsolais, Rosa McElheny, Ted Partin, Michael Rader, Kern Samuel, Ryan Sluggett, Greg Parma Smith

Astronomy

Director of undergraduate studies: Marla Geha (marla.geha@yale.edu);
astronomy.yale.edu

Astronomy is a quantitative physical science that applies physics, mathematics, and statistical analysis to observing, describing, and modeling the universe. The courses and degree programs offered by the Department of Astronomy train students in research techniques and quantitative reasoning and develop creative problem solvers. Students who complete the major continue on to top-tier graduate programs in astrophysics or related science fields, and they are sought after by employers in a range of fields from health care management to the banking and investment industry. The department offers a B.A. in Astronomy and a B.S. in Astrophysics.

INTRODUCTORY COURSES

Introductory courses with no prerequisites The department offers a variety of courses without prerequisites that provide an introduction to astronomy with particular attention to recent discoveries and theories. Courses numbered below 150 are intended for students who desire a broad, nontechnical introduction to astronomy. These courses fulfill the science distributional requirement, and some also fulfill the quantitative reasoning distributional requirement.

Courses with numbers from 150 to 199 are topical rather than survey courses. Most of these offerings fulfill both the science and the quantitative reasoning requirements. ASTR 155 is a laboratory course that provides a hands-on introduction to astronomical observing. ASTR 160 and 170 provide an introduction to frontier topics in modern astrophysics and cosmology.

Introductory courses with high school calculus and physics prerequisites Students who have taken calculus and physics in high school may enroll in quantitative introductory courses. ASTR 210 and ASTR 220 focus on fundamental measurements and tools used in astronomy and include an in-depth study of stellar astrophysics (ASTR 210) or galaxies and cosmology (ASTR 220). These courses overlap in content, so students should take either ASTR 210 or 220 but not both. ASTR 255 provides training in data analysis and research techniques, including computer programming and numerical and statistical analysis.

PREREQUISITES

B.A. degree program The prerequisites for the B.A. degree are PHYS 170 and 171, or 180 and 181, or 200 and 201, and MATH 112 and 115.

B.S. degree program Prerequisites for the B.S. degree include an introductory physics sequence (PHYS 180 and 181, or 200 and 201, or 260 and 261); a physics laboratory sequence (PHYS 165L and 166L, or 205L and 206L); and the mathematics sequence MATH 112, 115, and either MATH 120 or ENAS 151. ASTR 155 may be substituted for one term of the physics laboratory sequence. All prerequisites should be completed by the end of the sophomore year.

Prerequisites for advanced electives Courses numbered 300 and above are specialized and intensive. The prerequisites for these courses include ASTR 210 or 220, multivariable calculus, and two terms of introductory college physics.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program in Astronomy is designed for students who do not plan to continue in a graduate program in astronomy, but who are interested in the subject as a basis for a liberal arts education or as a physical science background to careers such as medicine, teaching, journalism, business, law, or government. It allows greater flexibility in course selection than the B.S. program because the emphasis is on breadth of knowledge rather than on specialization.

Ten courses are required beyond the prerequisites, including either ASTR 210 or 220, ASTR 255, 310, one additional Astronomy elective numbered 150 or above, and the senior requirement (ASTR 492). Two of the ten courses must be advanced courses in mathematics, such as MATH 120 or ENAS 151, or courses in mathematical methods, including statistics or computer science, such as CPSC 112, MATH 200 or above, or ASTR 356. Three electives can be drawn from any of the natural, applied, or mathematical sciences (including additional astronomy courses); at least two of these must be advanced enough to have college-level prerequisites.

B.S. degree program The B.S. degree program in Astrophysics is designed to provide a strong foundation in astrophysics for students interested in graduate study or a career in astronomy, physics, or a related science.

Beyond the prerequisites, twelve courses are required in astronomy, physics, and mathematics. Students complete at least six courses in astronomy, including either ASTR 210 or 220, 255, 310, 320, and a two-term senior project (ASTR 490 and 491). Students also complete three physics courses numbered 400 or above, normally PHYS 401, 402, and 439. In addition, majors choose either one additional 400-level course in physics or an astronomy elective numbered 300 or higher. In mathematics, students complete a course in differential equations selected from MATH 246, PHYS 301, or ENAS 194, and either an additional mathematics course numbered 200 or above or a course in statistics or computing such as CPSC 112, 201, or ASTR 356.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of either degree program.

SENIOR REQUIREMENT

B.A. degree program The senior requirement consists of a senior essay or independent research project carried out for one term in ASTR 492 under the supervision of a faculty member.

B.S. degree program The senior requirement consists of an independent research project in astronomy carried out for two terms in ASTR 490 and 491 under the supervision of a faculty member.

ADVISING

Before entering the junior year, students must obtain approval of a course of study from the director of undergraduate studies (DUS).

Graduate work Graduate courses in astronomy are open to qualified undergraduates who already have a strong preparation in mathematics, physics, and astronomy. Students wishing to take a graduate course must first obtain the permission of the instructor and of the director of graduate studies.

SUMMARY OF MAJOR REQUIREMENTS

ASTRONOMY, B.A.

Prerequisites PHYS 170, 171, or 180, 181, or 200, 201; MATH 112, 115

Number of courses 10 courses beyond prereqs, incl senior req

Specific courses required ASTR 210 or 220; ASTR 255, 310

Distribution of courses 1 astronomy elective numbered 150 or above; 2 advanced math courses; 3 science electives (may include addtl astronomy courses), at least 2 with college-level prereqs

Senior requirement Senior essay or senior research project (ASTR 492)

ASTROPHYSICS, B.S.

Prerequisites PHYS 180, 181, or 200, 201, or 260, 261; PHYS 165L, 166L, or 205L, 206L; MATH 112, 115; MATH 120 or ENAS 151

Number of courses 12 courses beyond prereqs, incl senior req

Specific courses required ASTR 210 or 220; ASTR 255, 310, 320

Distribution of courses 3 courses in physics numbered 400 or above; 1 addtl course in astronomy numbered 300 or above or in physics numbered 400 or above; 2 courses in math or mathematical methods, as specified

Substitution permitted ASTR 155 for 1 term of physics lab prereq

Senior requirement Senior independent research project (ASTR 490 and 491)

FACULTY OF THE DEPARTMENT OF ASTRONOMY

Professors Hector Arce, Charles Bailyn, †Charles Baltay, Sarbani Basu (*Chair*), Paolo Coppi, Pierre Demarque (*Emeritus*), Debra Fischer, Marla Geha, Jeffrey Kenney, Richard Larson (*Emeritus*), Gregory Laughlin, Priyamvada Natarajan, †C. Megan Urry, William van Altena (*Emeritus*), Frank van den Bosch, Pieter van Dokkum, Robert Zinn

Associate Professors †Daisuke Nagai, †Nikhil Padmanabhan

Assistant Professor Malena Rice

Lecturer Michael Faison

†A joint appointment with primary affiliation in another department.

Biology

Program coordinator: Leah Hartmann (amaleah.hartman@yale.edu); course coordinators: Richard Harrington (richard.harrington@yale.edu), Thomas Loreng (thomas.loreng@yale.edu)

Yale offers four biological science majors: Ecology and Evolutionary Biology (E&EB); Molecular Biophysics and Biochemistry (MB&B); Molecular, Cellular, and Developmental Biology (MCDB); and Neuroscience (NSCI). The distinctions between these majors reflect the types of biological systems analysis each represents: the analysis of whole organisms, populations, and ecosystems (E&EB); the analysis of life at the molecular level using tools of chemistry and physics (MB&B); the analysis of molecular, cellular, and developmental biology, genetics, neurobiology, and quantitative biology (MCDB); and the analysis of neurons, neural circuits, brains, and behavior, using a wide range of approaches (NSCI). Yale also offers the Biomedical Engineering (BENG) major for students interested in studying biological systems from the perspectives of the physical sciences and engineering.

Together, these approaches cover the vast breadth of disciplines in the biological sciences. The courses BIOL 101–104 are designed as entry points to all four programs. The prerequisites for the four majors are similar, so students need not commit to a specific major in their first year. Students who wish to major in any of the four tracks (E&EB, MB&B, MCDB, and NSCI) must complete all four modules.

For information on the major requirements, course offerings, and departmental faculty of the biological sciences programs, see Ecology and Evolutionary Biology; Molecular Biophysics and Biochemistry; Molecular, Cellular, and Developmental Biology; and Neuroscience. See also information for Biomechanical Engineering.

Biomedical Engineering

Director of undergraduate studies: Lawrence H. Staib (lawrence.staib@yale.edu), N309 B TAC, 785-5958; seas.yale.edu/departments/biomedical-engineering

Engineering methods and strategies are used to address biomedical problems ranging from studies of physiological function using images to the development of novel drug delivery methods and new biomaterials. The B.S. degree in Biomedical Engineering is designed to provide students with an understanding of common fundamental methodologies in biomedical engineering and the ability to develop quantitative approaches to one of four biomedical engineering tracks: Bioimaging, Biomechanics and Mechanobiology, Biomolecular Engineering, and Systems Biology. The course structure of the major permits students to bridge basic concepts in the life sciences and traditional areas of engineering, while gaining a comprehensive understanding of biomedical engineering as a field of study. The program provides graduates with an excellent background for graduate study in biomedical engineering and related areas, or in medicine and other health professions as well as for a diverse range of careers in industry, consulting, or government.

PREREQUISITES

The following prerequisites are common to all tracks in the major: BIOL 101 and 102 or a higher-level course in MCDB or MB&B, with the permission of the director of undergraduate studies (DUS); a lecture course in chemistry numbered CHEM 161 or higher; MATH 115 or 116 (not necessary if placed into MATH 120 or ENAS 151); MATH 120 or ENAS 151; ENAS 194; PHYS 180, 181 and PHYS 205L, 206L or PHYS 165L, 166L. Students with advanced high school preparation may move ahead to more advanced courses with DUS permission.

REQUIREMENTS OF THE MAJOR

Students must complete thirteen term courses, totaling at least eleven course credits, beyond the prerequisites, including at least three required courses in the chosen track and the senior requirement (see below). During the first two years, students study basic biology, chemistry, mathematics, and physics (see prerequisites). By the end of the sophomore year, students should have taken BENG 280, 249, and 350. In the junior year, students gain a comprehensive grounding in the field through BENG 351, 352, 353, 355L, and 356L. During the junior and senior years, students acquire depth by taking electives in one of the four tracks. One relevant course (e.g. MB&B 300) may be substituted with DUS permission. A senior seminar (BENG 480) provides information about field and a senior project (BENG 474 or BENG 473, 474) allows students to explore an area in depth.

Students in all tracks are required to take the following courses: BENG 249, 280, 350, 351, 352, 353, 355L, 356L and 480.

Students in the *Bioimaging track* must also take three courses chosen from BENG 404, 406, 410, 444, 445, 449, 475, 476, or 485.

Students in the *Biomechanics and Mechanobiology track* must also take three courses chosen from MENG 185, 361, BENG 404, 406, 410, 422, 434, 455, 456, 457, 458, or 459.

Students in either the *Biomolecular Engineering track* and the *Systems Biology track* must also take three courses chosen from BENG 404, 406, 410, 411, 422, 434, 435, 463, 464, 465, 467, 468, 469, MENG 361.

Research Courses Students are permitted and encouraged to engage in research before the senior year by enrolling in BENG 471 and/or BENG 472. These courses, offered Pass/Fail, may be taken more than once for credit.

Credit/D/Fail No course taken Credit/D/Fail may count toward the major, including prerequisites.

SENIOR REQUIREMENT

In their sophomore year, all students must enroll in BENG 280 and in their senior year, all students must enroll in BENG 480; both are half-credit courses. They must also complete a one-term senior project in their final term of enrollment (BENG 474) or a two-term, yearlong project (BENG 473, 474).

ADVISING

Preparation for graduate study The Biomedical Engineering curriculum is excellent preparation for graduate study in engineering, science, and medicine.

Combined B.S./M.S. degree program Exceptionally able and well-prepared students may apply to complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Biomedical Engineering.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites BIOL 101 and 102, or higher-level course in MCDB or MB&B with DUS permission; 1 lecture course in chemistry numbered CHEM 161 or higher; ENAS 194; MATH 115 or 116 (not necessary if placed into MATH 120 or ENAS 151); MATH 120 or ENAS 151; PHYS 180, 181 and PHYS 205L, 206L (or PHYS 165L, 166L with DUS permission)

Number of courses 13 term courses, totaling at least 11 course credits, beyond prerequisites (incl senior req)

Specific courses required *All tracks*—BENG 249, 280, 350, 351, 352, 353, 355L, 356L, 480; *Bioimaging track*—3 from BENG 404, 406, 410, 444, 445, 449, 475, 476, 485; *Biomechanics and Mechanobiology track*—3 from MENG 185, 361, BENG 404, 406, 410, 422, 434, 455, 456, 457, 458, 459; *Biomolecular Engineering track and Systems Biology track*—3 from BENG 404, 406, 410, 411, 422, 434, 435, 463, 464, 465, 467, 468, 469, MENG 361

Substitution permitted Relevant course with DUS permission

Senior requirement BENG 280, a half-credit course taken sophomore year; BENG 480, a half-credit course taken senior year; a one-term senior project in final term of enrollment (BENG 474) or two-term, yearlong senior project (BENG 473 and 474)

FACULTY OF THE DEPARTMENT OF BIOMEDICAL ENGINEERING

Professors †Helene Beneviste, †Joerg Bewersdorf, Richard Carson, †Nicholas Christakis, †Todd Constable, †Robin de Graaf, James Duncan, Rong Fan, †Henry Hsia, Jay Humphrey, Fahmeed Hyder, Themis Kyriakides, †Francis Lee, Andre Levchenko, †Graeme Mason, †Evan Morris, †Xenophon Papademetris, Douglas Rothman, Mark Saltzman, †Martin Schwartz, †Frederick Sigworth, †Albert Sinusas, †Brian Smith, Lawrence Staib, †Hemant Tagare, †Paul Van Tassel, Steven Zucker

Associate Professors Stuart Campbell, Tarek Famy, †Gigi Galiana, Anjelica Gonzalez, †Michelle Hampson, Farren Isaacs, †Chi Liu, Kathryn Miller-Jensen, Michael Murrell, †Dana Peters, †Dustin Scheinost, †Jiangbing Zhou

Assistant Professors †Daniel Coman, †Nicha Dvornek, †Ansel Hillmer, Michael Mak, Christina Rodriguez, Gregory Tietjen, †Daniel Wiznia

Research Scientist †Steven Tommasini

Lecturers †Liqiong Gui, †Jing Zhou

†A joint appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

British Studies

(Courses at the Paul Mellon Centre in London)

Director of undergraduate studies: Jemma Field (jemma.field@yale.edu)

The Yale in London program offers Yale undergraduates the opportunity to take spring or summer courses in London at the Paul Mellon Centre for Studies in British Art. The program gives students the opportunity to go beyond the traditional classroom into the rich and vibrant environment in British studies, generally including British history and the history of London, where students can view great works of art in museums and galleries; explore historic palaces and houses; and watch new and legendary actors treading the boards in London.

The spring program consists of four courses, while the summer program has two courses. There are no prerequisites and students from any major and from any year of study may apply. All courses carry full academic credit and must be taken for a letter grade. Courses are taught seminar-style by Yale faculty and leading academics from the UK. Courses bring together British art, architecture, history, literature, theatre, and culture to explore Britain's identity and impact, both local and global, from the Medieval period to today. Classes are held Monday through Thursday so that students can explore London and beyond in the afternoons and on weekends.

Further information on housing, fees, financial aid, and student life is available on the program website. Inquiries may also be directed to yaleinlondon@yale.edu.

The application deadline for the spring term is in October and the application deadline for the summer program is generally in February. See the Yale in London website for exact deadlines. Students are notified of acceptance within one month of the application deadline. Inquiries about the program, described under "International Experience" in The Undergraduate Curriculum, should be directed to the same address.

Chemical Engineering

Director of undergraduate studies: Paul Van Tassel (paul.vantassel@yale.edu); seas.yale.edu/departments/chemical-and-environmental-engineering

Energy, the environment, and health care are key challenges facing humanity in the twenty-first century. Chemical engineering is a discipline well placed to confront these challenges. Chemical engineering is rooted in the basic sciences of mathematics, chemistry, physics, and biology; a traditional engineering science core of thermodynamics, transport phenomena, and chemical kinetics; a rigorous design component; and an expanding focus on emerging topics in materials, nanotechnology, and life sciences. The discipline has grown from its petrochemical origins to become central to state-of-the-art technologies in microelectronics, alternative energy, biomedicine, and pharmaceuticals.

The Chemical Engineering program, with two degree programs (see below), is principally focused on basic and engineering sciences and on problem solving. Additional emphasis is on communication, analysis of experiments, and chemical process design. A special feature of the program is the accessibility of laboratory research – most chemical engineering majors participate in faculty-led research projects, often resulting in publication and/or presentation at national meetings.

Chemical engineering graduates find a wide range of professional opportunities in academia, industry, government, business, and the nonprofit sector. Many majors go on to graduate programs in chemical, biomedical, or environmental engineering, or to medical, law, or business schools.

Upon graduation, Yale's Chemical Engineering students are expected to have achieved "Student Outcomes" as defined by ABET (www.abet.org) and the program. The Chemical Engineering major produces graduates who demonstrate: (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics; (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors; (3) an ability to communicate effectively with a range of audiences; (4) an ability to recognize ethical and professional responsibilities in engineering situations and to make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts; (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives; (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions; and (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Yale and ABET also look ahead, several years beyond graduation. Program educational objectives provide the expectations for graduates early in their career. The Chemical Engineering objectives are to produce graduates who: (1) have mastery of the basic principles of science and modern chemical engineering practice and are able to adapt and creatively apply them to solve new problems in a broad range of fields; (2) become ethical professionals who advance chemical engineering practice and knowledge in

multiple fields and recognize the local and global impacts of their work on humans and the environment; (3) are able to work well with people from diverse backgrounds and are committed to the advancement of women and under-represented groups in engineering; (4) have a strong educational foundation enabling them to study in graduate and professional schools as well as become leaders in STEM or non-STEM career paths; and (5) are committed to, and engage in, lifelong learning throughout their careers.

PREREQUISITES

Students considering a Chemical Engineering major are encouraged to take two terms of chemistry and mathematics during the first year, and to contact the director of undergraduate studies (DUS).

Students in both degree programs (see below) take the following prerequisite courses: MATH 112, 115, and ENAS 151 or MATH 120; CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; PHYS 180, 181 or PHYS 200, 201 or PHYS 260. Students with advanced high school preparation may reduce the number of prerequisites by placing out of certain courses.

REQUIREMENTS OF THE MAJOR

Students in the Class of 2024 and 2025 With approval from the director of undergraduate studies (DUS), the following changes to the requirements of the major may be fulfilled by students who declared their major under previous requirements.

Students in the Class of 2026 and subsequent classes follow the major requirements as indicated.

Two degree programs are offered: a B.S. in Chemical Engineering accredited by the Engineering Accreditation Commission of ABET, Inc., and a B.S. in Engineering Sciences (Chemical). All students majoring in Chemical Engineering and Engineering Sciences (Chemical) must follow the requirements listed below as approved by the program's faculty.

B.S. degree program in Chemical Engineering The curriculum for the ABET-accredited B.S. degree in Chemical Engineering requires 19 courses, totaling 18.5 credits, including the senior requirement (CENG 416), and the following courses beyond the prerequisites:

1. Computing: ENAS 130 or CPSC 100 or CPSC 112 or CPSC 200
2. Mathematics: ENAS 194
3. Chemistry: CHEM 174 or CHEM 220; CHEM 222L; CHEM 332 and 333
4. Engineering science: Four term courses chosen from engineering electives
5. Chemical engineering: CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411, 412L, 480

B.S. degree program in Engineering Sciences (Chemical) The B.S. degree in Engineering Sciences (Chemical) requires 12 term courses for 12 credits, including the senior requirement, CENG 416 or CENG 490, and the following courses beyond the prerequisites, chosen in consultation with the DUS:

1. Computing: ENAS 130 or CPSC 100 or CPSC 112 or CPSC 200
2. Mathematics: ENAS 194
3. Chemistry: 3 advanced chemistry courses: CHEM 174 or CHEM 220; and CHEM 332
4. Engineering science (chemical): One term course chosen from engineering electives
5. Chemical engineering: CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411

SENIOR REQUIREMENT

B.S. degree program in Chemical Engineering In their senior year, students must complete a senior research project in CENG 416.

B.S. degree program in Engineering Sciences (Chemical) In their senior year, students must complete a senior research project in CENG 416 or CENG 490.

SUMMARY OF MAJOR REQUIREMENTS

CHEMICAL ENGINEERING, B.S.

Prerequisites MATH 112, 115; ENAS 151 or MATH 120; CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; PHYS 180, 181 or PHYS 200, 201 or PHYS 260.

Number of courses 19 courses, totaling 18.5 credits, beyond prereqs (incl senior req)

Specific courses required ENAS 194; CHEM 174 or CHEM 220; CHEM 222L; CHEM 332, 333; CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411, 412L, 480

Distribution of courses 1 from ENAS 130, CPSC 100, 112, or 200; 4 addtl electives in engineering

Senior requirement CENG 416

ENGINEERING SCIENCES (CHEMICAL), B.S.

Prerequisites MATH 112, 115; ENAS 151 or MATH 120; CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; PHYS 180, 181 or PHYS 200, 201 or PHYS 260.

Number of courses 12 term courses for 12 credits beyond prereqs (incl senior req), chosen in consultation with DUS

Specific courses required ENAS 194; CENG 150 or CENG 210; CENG 300, 301, 314 (or MENG 361), CENG 315, 411

Distribution of courses 1 from ENAS 130, CPSC 100, 112, or 200; 2 adv chem courses, as specified; 1 engineering elective

Senior requirement CENG 416 or CENG 490

FACULTY OF THE DEPARTMENT OF CHEMICAL AND ENVIRONMENTAL ENGINEERING

Professors Eric Altman, †Paul Anastas, †Michelle Bell, †Ruth Blake, Menachem Elimelech, Gary Haller (*Emeritus*), †Edward Kaplan, Jaehong Kim, Michael

Loewenberg, †Andrew Miranker, Jordan Peccia, Lisa Pfefferle, Daniel Rosner (*Emeritus*), †Mark Saltzman, †Udo Schwarz, T. Kyle Vanderlick, Paul Van Tassel, Julie Zimmerman

Associate Professors John Fortner, Drew Gentner

Assistant Professors Peijun Guo, Amir Haji-Akbari, †Shu Hu, Lea Winter, Mingjiang Zhong

Lecturers †Anikó Bezur, †Paul Whitmore

†A joint appointment with primary affiliation in another department or school.

Chemistry

Director of undergraduate studies: Nilay Hazari (nilay.hazari@yale.edu), 310 CRB, 203-432-0885; chem.yale.edu

The wide range of courses offered by the Department of Chemistry reflects the position of chemistry as the foundation of all the molecular sciences. In addition to graduate work in chemistry, biochemistry, or health-related disciplines, the department's graduates find their broad scientific training useful in fields such as technology policy, business management, and law. Chemistry is an especially appropriate major for students interested in energy research or policy and the environment.

COURSES FOR NONMAJORS WITHOUT PREREQUISITES

The Chemistry department offers one-term courses with no prerequisites, which are intended for non-science majors. These courses do not satisfy medical school requirements or the general chemistry requirement for any science major. Courses for nonmajors are numbered CHEM 100–109.

PREREQUISITES AND INTRODUCTORY COURSES

Prerequisite courses Prerequisites common to all four Chemistry degree programs include two terms of general chemistry and laboratory; single-variable calculus at the level of MATH 115; and one term of introductory physics numbered 170 or higher, or the equivalents in advanced placement. Students also are encouraged to complete a course in multivariable calculus (MATH 120 or ENAS 151).

Introductory courses The majority of students begin with a general chemistry sequence: either CHEM 161 and 165 or CHEM 163 and 167. These courses fulfill the prerequisite for general chemistry in the Chemistry major. Students taking CHEM 161 may be studying chemistry for the first time, perhaps took chemistry as a high school sophomore, or even may have completed AP chemistry but did not fully master the subject at that level. Students in CHEM 163 will have completed a year or two of chemistry later in high school, although motivated students may have last taken chemistry as a high-school sophomore if they have a strong math and physics background. Typically students who complete CHEM 163 in the fall term complete CHEM 167 in the spring term. Regardless of whether a student completes the CHEM 161 and 165 sequence or the CHEM 163 and 167 sequence, the introductory laboratory sequence is CHEM 134L and 136L; each laboratory course earns one-half course credit.

Students with a sufficiently strong background in chemistry may initiate their studies with courses in organic or physical chemistry after demonstrating proficiency on the department's placement examination. While CHEM 174 and 175 are offered expressly for first-year students, other courses in organic chemistry, including CHEM 220 and 221, also are available to qualified first-year students. Students with a strong background in physics and calculus may be eligible for the physical chemistry courses CHEM 332 and 333.

PLACEMENT PROCEDURES

Details about placement and preregistration for chemistry courses can be found on the department website. Information about the placement examination and advising also are available on the department website.

Permission Enrollment in CHEM 163 or CHEM 174 through the registration system requires permission from the department. Permission is issued automatically after placement has been completed for entering first-year students. For more information email chemistry.dus@yale.edu.

Upper-level students Upper-level students wishing to take CHEM 161 or 163 should confirm their placement on Canvas@Yale by accessing the Chemistry Placement site that corresponds to their year of matriculation. If permission is required in the registration system, upper-level students should write to chemistry.dus@yale.edu. Those wishing to enroll in CHEM 220 may do so as long as they have satisfied the general chemistry prerequisite.

Section registration in laboratory and lecture courses Information about online registration for laboratory and discussion sections can be found in the description for each laboratory or lecture course in Yale Course Search.

Advanced courses All chemistry advanced lecture courses are half-semester courses, which count for 0.5 Yale College credits. Some courses start in the first-half of semester, while others start in the second-half of semester. Information about the timing of courses is available in Yale Course Search. Because most advanced courses are offered either in the fall term or have a fall-term course as a prerequisite, students should give consideration to the advanced courses they plan to take in the spring term. For the purpose of degree requirements, all undergraduate Chemistry courses numbered 401 or higher, approved by the director of undergraduate studies (DUS), typically count as advanced lecture or laboratory courses, as do CHEM 226L, 251L, 331L, 349L, 355L, and 335L. Many graduate-level Chemistry courses (those numbered 500 and above) also may count toward the advanced-course requirement; consult the DUS for information about eligible courses.

For premedical students Medical schools currently require one year of organic chemistry and laboratory as well as one year of general chemistry and laboratory. The general chemistry requirement may be satisfied by completing CHEM 161 and 165, CHEM 163 and 167, or two terms of physical chemistry. Students should consult with the Office of Career Strategy for the most up-to-date premedical course advice.

REQUIREMENTS OF THE MAJOR

Four degree programs are offered: the B.A., the B.S., an intensive major leading to the B.S., and the combined B.S./M.S. The B.A. degree is intended for students who want solid training in the chemical sciences and who also intend to study other subjects in which chemical training would be an asset, such as technology policy, economics, or the environment. The B.S. degree is intended to prepare students for graduate study while permitting extensive exploration of other disciplines and is also recommended for those planning to attend graduate school. The B.S. degree with an intensive major provides more focused preparation for a career in chemical research, and requires greater breadth in laboratory courses and electives. The combined B.S./M.S. is designed for students

whose advanced preparation qualifies them for graduate-level work in their third and fourth years of college.

The major requires a group of prerequisites or their equivalent in advanced placement, a core of courses common to all four degree programs, advanced courses specific to each degree program, and a senior requirement.

Course requirements common to all Chemistry degree programs All degrees require two terms of organic chemistry (CHEM 174 or 220, and CHEM 175, 221, or 230) with laboratory (CHEM 222L and 223L), one term of physical chemistry (CHEM 332 or 328), and one term of inorganic chemistry (CHEM 252).

B.A. degree program The B.A. degree program requires ten course credits, beyond the prerequisites. In addition to the common degree requirements and one-term senior requirement, the B.A. degree requires four additional course credits of advanced chemistry lecture or laboratory courses. At least one full credit must be attained through advanced lecture courses in the Chemistry department and at least one must be a Chemistry laboratory course. CHEM 333 may be counted toward the advanced-course requirement, although not as the sole lecture course.

B.S. degree program The B.S. degree program requires thirteen course credits, beyond the prerequisites. In addition to the common degree requirements and two-term senior requirement, the B.S. degree requires completion of a second term of physical chemistry (CHEM 333), one term of physical chemistry laboratory (CHEM 330L), and four additional course credits of advanced chemistry lecture or laboratory courses. At least one full credit must be attained through advanced lecture courses in the Chemistry department and at least one must be a Chemistry laboratory course.

B.S. degree program, intensive major The B.S. degree program, intensive major requires fifteen course credits, beyond the prerequisites. In addition to the common degree requirements and two-term senior requirement, the B.S. degree with an intensive major requires completion of a second term of introductory physics numbered 171 or higher, a second term of physical chemistry (CHEM 333), one term of physical chemistry laboratory (CHEM 330L), and five additional course credits of advanced chemistry lecture or laboratory courses. At least two full credits must be attained through advanced lecture courses in the Chemistry department and at least one must be a Chemistry laboratory course.

Combined B.S./M.S. degree Exceptionally well-prepared students may complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. Formal application for admission to this program must be made no later than the last day of classes in the fifth term of enrollment. To be considered for admission, by the end of their fifth term applicants must have achieved at least two-thirds A or A- grades in all of their course credits as well as in all of the course credits directly relating to the major, including prerequisites. Two terms of CHEM 490 must be taken in the fifth and sixth terms with earned grades of A or A- to continue in the program. The B.S./M.S. degree program requires completion of the intensive major requirements, including the senior requirement, which typically is completed in the fifth and sixth terms. The introductory physics requirement must be fulfilled with PHYS 200 and 201 or PHYS 260 and 261; a term course in physics numbered 400 or higher and approved by the Chemistry DUS may be substituted for

the introductory sequence. In addition, eight credits of graduate courses in chemistry (four of which count toward the B.S.) are required. Four terms of research are required, including two terms of research taken in CHEM 990. Students in the program must earn grades of A in at least two of their graduate-level term courses (or in one yearlong course) and have at least a B average in other graduate-level courses. B.S./M.S. candidates also are expected to continue their independent research in a summer internship between their junior and senior years. At the end of their eighth semester students are required to write a thesis summarizing their research activities. The thesis must be written under the guidance of the faculty member who supervises the student's research and it must be submitted to their research adviser on the final day of classes of the student's eighth semester. The thesis should be no shorter than twenty-five pages (double-spaced, twelve-point font, excluding figures, tables, and bibliography) and normally should contain the following sections: Introduction, Results and Discussion, Summary and Conclusions, Research Methods, and Bibliography. Students in the B.S./M.S. program, must also present their research in the form of a poster presentation at the end of their sixth semester (to fulfill the requirements of the B.S. degree) and an oral presentation at the end of their eighth semester (to fulfill the requirements of the M.S. degree). Both the poster and oral presentation are coordinated by the instructor of CHEM 490. For more information, see Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees."

Credit/D/Fail No chemistry courses taken Credit/D/Fail may be counted toward the major (including substitutions for advanced courses).

SENIOR REQUIREMENT

For the B.A. degree program Students in the B.A. degree program must complete the senior seminar CHEM 400, in which they prepare a capstone essay on a chemistry-related topic. The paper is expected to be 15–25 pages in length (double-spaced, twelve-point font, exclusive of figures, tables, and bibliography).

For the B.S. degree program Students in the B.S. degree program may fulfill the senior requirement by completing two terms of the independent research course CHEM 490 and writing a capstone report under the guidance of a faculty member that describes their research activities. Alternatively, they may complete the senior seminar CHEM 400, in which they prepare a capstone essay on a chemistry-related topic, and complete one additional course credit of advanced chemistry lecture or laboratory courses. One term of CHEM 490 may be counted as the additional advanced course. The capstone report or essay is expected to be 15–25 pages in length (double-spaced, twelve-point font, exclusive of figures, tables, and bibliography). All students performing research also must present their work in the form of an oral or poster presentation as coordinated by the instructor of CHEM 490.

For the B.S. degree program with an intensive major Students in the B.S. degree program with an intensive major fulfill the senior requirement by completing two terms of the independent research course CHEM 490 and writing a capstone report of 15–25 pages in length (double-spaced, twelve-point font, exclusive of figures, tables, and bibliography) under the guidance of a faculty member that describes their research

activities. Students in the intensive major program also must present their work in the form of an oral or poster presentation as coordinated by the instructor of CHEM 490.

ADVISING

Majors are encouraged to begin their programs in the first year to provide the greatest flexibility in scheduling. It is possible, however, to complete the B.S. in as few as six terms if a student has advanced placement. One sample B.S. program follows, but many others are possible:

First-Year	Sophomore	Junior	Senior
CHEM 161, 165, 134L, 136L, math prereq	CHEM 220, 221, 252, 222L, 223L, physics prereq	CHEM 332, 333, 330L, 251L, 1 elective (1 credit)	2 terms of CHEM 490, 2 electives (2 credits)

Substitutions for required courses Up to two credits of advanced science courses outside Chemistry may be counted as electives, with the written approval of the DUS. CHEM 490 may not in any circumstance be substituted for any of the laboratory requirements. The graduate courses CHEM 562L, 564L, and 565L may not be counted toward any requirement of the major.

Programs of study with special emphasis The flexibility of the degree requirements makes it possible for a student's program of study to emphasize a particular area of specialization in chemistry. For example, a program specializing in chemical biology may include CHEM 419 and biochemistry electives such as MB&B 300 or 301. An inorganic chemistry specialization could include CHEM 402 and 403. A program with emphasis in physical chemistry and chemical physics would have electives such as CHEM 466, 472, or 496. Students interested in synthetic organic chemistry could complete electives such as CHEM 416, 423, or 528. An emphasis in biophysical chemistry includes a course in either chemical biology or biochemistry, as well as electives chosen from graduate courses in biophysics or biochemistry. Students may design programs with other areas of emphasis in consultation with the DUS. For a list of graduate courses appropriate for a particular specialization, consult the DUS.

Approval of major programs of study All Chemistry majors in their sophomore, junior, and senior years must have their programs approved by the DUS. A program tailored to each student's goals is created and recorded on a Chemistry Course of Study (COS) form.

STUDY ABROAD

In most instances, Chemistry majors find their course of study easier to schedule if they choose to study abroad in a spring term. Students studying abroad in the spring term of their junior year are required to obtain approval for the project that will fulfill their senior requirement before the end of the prior term. For general information on the Year or Term Abroad, see Academic Regulations, section K, Special Academic Programs, "Year or Term Abroad."

UNIQUE TO THE MAJOR

Special restrictions on lecture courses For the general, organic, or physical chemistry sequences, CHEM 161 and 165; CHEM 174 or 220 and CHEM 175, 221, or 230; and CHEM 332 or CHEM 328 and 333, completion of the first term with a passing grade is a

prerequisite for registration in the subsequent term. Completion of CHEM 163 with a passing grade is a prerequisite for registration in CHEM 167.

Students receive credit for only one chemistry sequence of any given type. For example, a student who has completed CHEM 161 and 165 may not subsequently enroll in CHEM 163 or 167; a student who has completed CHEM 174 and 175 may not subsequently enroll in CHEM 220, 221, or 230. Similarly, students may not enroll in a course (typically of lower number) that is a prerequisite to a course they already have taken. For example, a student who has completed an organic chemistry laboratory cannot subsequently enroll in a general chemistry laboratory.

Special restrictions on laboratory courses Chemistry courses may be taken without the accompanying laboratory, although the department does not recommend it. However, the appropriate lecture course is a prerequisite or corequisite for each laboratory course. This restriction can be waived only by the DUS. Students dropping the lecture course corequisite with a laboratory must also drop the laboratory course.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites CHEM 161 and 165 or CHEM 163 and 167; CHEM 134L and 136L; MATH 115 (MATH 120 or ENAS 151 suggested); PHYS 170, 180, 200, or 260; or equivalents in adv placement

Number of courses *B.A.* – 10 course credits, beyond prereqs (incl senior req); *B.S.* – 13 course credits, beyond prereqs (incl senior req); *B.S., intensive major* – 15 course credits, beyond prereqs (incl senior req)

Specific courses required *All degrees* – 2 terms of organic chem (CHEM 174 or 220 and CHEM 175, 221, or 230); 2 terms of organic chem lab (CHEM 222L and 223L); 1 term of physical chem (CHEM 332 or 328); 1 term of inorganic chem (CHEM 252); *B.S.* – CHEM 330L, 333; *B.S., intensive major* – CHEM 330L, 333; second term of intro physics, PHYS 171 or higher

Distribution of courses *B.A. and B.S.* – 4 addtl course credits in adv lectures or labs, incl at least 1 lecture credit and 1 lab; *B.S., intensive major* – 5 addtl course credits in adv lectures or labs, incl at least 2 credits of lectures and 1 lab

Substitution permitted Up to 2 relevant adv science courses in other departments for adv chemistry courses with DUS permission

Senior requirement *B.A.* – CHEM 400; *B.S.* – 2 terms of CHEM 490, or CHEM 400 and 1 addtl course credit in adv lecture or lab; *B.S., intensive major* – 2 terms of CHEM 490; all degree programs require submission of senior capstone essay

FACULTY OF THE DEPARTMENT OF CHEMISTRY

Professors Victor Batista, Gary Brudvig, Robert Crabtree (*Emeritus*), Jason Crawford, †Craig Crews, R. James Cross, Jr. (*Emeritus*), Jonathan Ellman, John Faller (*Emeritus*), Sharon Hammes-Schiffer, Nilay Hazari, Seth Herzon, Patrick Holland, Mark Johnson, William Jorgensen, J. Patrick Loria, James Mayer, J. Michael McBride (*Emeritus*), Scott Miller, Peter Moore (*Emeritus*), Timothy Newhouse, †Anna Pyle, †James Rothman, Martin Saunders (*Emeritus*), †Dieter Söll, David Spiegel, †Scott Strobel, John Tully

(*Emeritus*), Patrick Vaccaro, Hailiang Wang, Kenneth Wiberg (*Emeritus*), Elsa Yan, Frederick Ziegler (*Emeritus*), Kurt Zilm

Associate Professor Sarah Slavoff

Assistant Professors Amymarie Bartholomew, Caitlin Davis, †Stavroula Hatzios, Stacy Malaker, †Mingjiang Zhong

Lecturers Paul Anastas, Paul Cooper, Christine DiMeglio, Jonathan Parr

Preceptors TBD

†A joint appointment with primary affiliation in another department.

See visual roadmap of the requirements.

Child Study

Director of undergraduate studies: James McPartland (james.mcpartland@yale.edu);
medicine.yale.edu/childstudy/

The Child Study Center is a department at Yale University School of Medicine which brings together multiple disciplines to further the understanding of the problems of children and families. Among the many disciplines are child psychiatry, pediatrics, genetics, neurobiology, epidemiology, psychology, nursing, social work, and social policy. The mission of the Yale Child Study Center is to improve the mental health of children and families, advance understanding of their psychological and developmental needs, and treat and prevent childhood mental illness through the integration of research, clinical practice, and professional training. The Child Study Center is unique in its scope of research, clinical services, training programs, policy work, and its local, state, national, and international collaborations. The strengths of the Center are reflected in the breadth and integrative nature of research, clinical services and training. More information is available on the Child Study Center website.

Classics

Director of undergraduate studies: Andrew Johnston (andrew.johnston@yale.edu); 311 Phelps Hall; classics.yale.edu

The Department of Classics offers a major in Classics, concentrating in either Greek or Latin literature, or in both literatures; a major in Classical Civilization; and, in conjunction with the Hellenic Studies program, a major in Ancient and Modern Greek. The diversity of subject matter covered by these majors makes Classics an excellent partner in interdepartmental major programs. Programs for all majors must be approved by the director of undergraduate studies (DUS).

COURSE NUMBERING

All CLCV courses are taught in translation, with no knowledge of Greek or Latin required. CLCV courses numbered 001–099 are First-Year Seminars, with enrollment limited to eighteen. CLCV courses numbered at the 100-level and 200-level are primarily introductory, lecture-style courses, which may or may not include a discussion-section component. CLCV courses numbered at the 300-level are discussion-oriented seminars, with enrollment limited to fifteen.

For courses in Ancient Greek (GREK) and Latin language (LATN), those at the 100-level are introductory and intermediate courses (L1, L2, L3, and L4), while those at the 400-level are advanced seminar-style courses (L5).

PLACEMENT PROCEDURES

Students are encouraged to take courses as advanced as they can handle with profit and pleasure. The department, recognizing the great variety of preparation in ancient languages, wishes to accommodate incoming students in as flexible a manner as possible. Students who plan either to begin or to continue the study of Greek or Latin should consult members of the departmental faculty as soon as possible.

Students who have had the equivalent of two years of college-level instruction may try a 400-level course. It is possible to take GREK 141 or LATN 141 after a 400-level course, or to be admitted to a 400-level course after completion of GREK 131 or LATN 131.

REQUIREMENTS OF THE MAJOR IN CLASSICS

The major in Classics is primarily a liberal arts major. It provides a rigorous interdisciplinary education in the literature, material culture, and history that underlie Western civilization and other humanities disciplines; it can also provide foundational disciplinary expertise for students who wish to do professional graduate work. Students develop a mastery of the classical languages, become acquainted with important periods and major authors in Greek and Roman literature, and develop the linguistic, historical, and theoretical interpretative tools to analyze classical antiquity and its relevance in the modern world. All courses in the department emphasize a combination of precise analysis, original thought, creativity, and breadth of historical inquiry. Courses in other literatures, in history, in art history, and in philosophy are strongly recommended for students enrolled in the Classics major.

The department recognizes three concentrations for this major, one aiming at knowledge of both ancient literatures, Greek and Latin; one concentrating on Greek literature, and the third concentrating on Latin literature.

Students in the Class of 2024 and 2025 With approval from the director of undergraduate studies (DUS), the following changes to the requirements of the major may be fulfilled by students who declared their major under previous requirements.

The concentration in two literatures requires no fewer than twelve term courses (including senior requirement). These include six language courses in both Greek and Latin at the level of 390 or above, of which no fewer than two must be taken in each language. These six courses must include GREK 403 or LATN 390. Also required are one course that covers broadly the literature and/or culture of ancient Greece (CLCV at the 100- or 200-level), one course that covers broadly the literature and/or culture of ancient Rome (CLCV at the 100- or 200-level), one course in a related field in ancient history, and one course in a related field in ancient history, ancient philosophy, classical art and archaeology, or classical civilization.

Students concentrating in one literature (Greek or Latin) are required to take no fewer than twelve term courses (including the senior requirement). These include six language courses in that literature level of 390 or above, and must include GREK 403 or LATN 390. Also required are one course that covers broadly the literature and/or culture of ancient Greece (CLCV at the 100- or 200-level), one course that covers broadly the literature and/or culture of ancient Rome (CLCV at the 100- or 200-level), a course in ancient history related to the chosen literature, and an additional course in ancient history, classical art and archaeology, ancient philosophy, or classical civilization. Students are encouraged to do some work in the second language and may substitute two terms at the intermediate level (131 and 141) or higher in the second language for two 400-level courses in the major literature.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must enroll in one or two semesters of the Classics Senior Tutorial (CLSS 498, or CLSS 498 and CLSS 499). The Senior Tutorial is designed to accommodate a range of culminating experiences in the field of Classics: an original work of scholarly research, an intensive study of language and literature based on a customized reading list, or an alternative creative project. A faculty advisor should be selected and a brief proposal submitted for approval by the end of the junior year. Students who elect the one-term Senior Tutorial must take one additional course to fulfill the requirements of the major; this can be any course designated CLCV, CLSS, LATN, or GREK; or—with approval of the DUS—a relevant course in another field of study.

Combined B.A./M.A. degree Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Classics.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required GREK 403 or LATN 390

Distribution of courses *All concentrations*— 1 course that covers broadly the literature and/or culture of ancient Greece, and 1 course that covers broadly the literature and/or culture of ancient Rome; 1 addtl course in ancient hist, classical art and archaeology, ancient philosophy, or classical civ; *Two literatures concentration*— 6 courses in both langs at level 390 or above, with one of those being GREK 403 or LATN 390; 1 course in ancient hist; *One literature concentration*— 6 courses in lit at level 390 or above, with one of those being GREK 403 for the Greek major and LATN 390 for the Latin major; 1 course in ancient hist related to lit of major

Substitution permitted *One literature*— 2 courses in the other literature numbered 131 or higher for 2 courses in the major literature at 400 level

Senior requirement Two terms of Senior Tutorial (CLSS 498 and CLSS 499) or one-term Senior Tutorial (CLSS 498) and an additional course

REQUIREMENTS OF THE MAJOR IN CLASSICAL CIVILIZATION

The major in Classical Civilization is designed to offer students an opportunity to study an entire Western civilization in its many diverse but related aspects. The literature, history, philosophy, religion, art, archaeology, and other aspects of Greek and Roman antiquity from the earliest beginnings in Greece to the Middle Ages are studied for their intrinsic artistic value, their historical significance, and their power to illuminate problems confronting contemporary societies. Each year, the department offers courses that focus on ways that subsequent ages have used and made sense of classical antiquity. Ancient texts are studied primarily in translation, under the guidance of instructors who have expertise in Greek and Latin.

Students in the Class of 2024 and 2025 With approval from the director of undergraduate studies (DUS), the following changes to the requirements of the major may be fulfilled by students who declared their major under previous requirements.

Candidates for the major complete at least twelve term courses (including the Senior Tutorial) in Classics and related departments. Of these, two must be in ancient history and/or classical art and archaeology; and two must be in Greek or Latin, or both, numbered 131 or higher (the latter courses should be completed by the end of the junior year). Students must also take one course that covers broadly the literature and/or culture of ancient Greece (CLCV at the 100- or 200-level), and one term course that covers broadly the literature and/or culture of ancient Rome (CLCV at the 100- or 200-level). It is strongly recommended that candidates elect one course each in the general areas of ancient epic, drama, philosophy, Roman civilization, and the classical tradition. Candidates for the major are encouraged to take related courses in other departments.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must enroll in one or two semesters of the Classics Senior Tutorial (CLSS 498, or CLSS 498 and CLSS 499). The Senior Tutorial is designed to accommodate a range of culminating experiences in the field of Classics: an original work of scholarly research, an intensive study of language and literature based on a customized reading list, or an alternative creative project. A faculty advisor should be selected and a brief proposal submitted for approval by the end of the junior year. Students who elect the one-term Senior Tutorial must take one additional course to fulfill the requirements of the major; this can be any course designated CLCV, CLSS, LATN, or GREK; or—with approval of the DUS—a relevant course in another field of study.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required None

Distribution of courses 2 courses in ancient history and/or classical art and archaeology; 2 courses in Greek or Latin, or both, numbered 131 or higher; 1 course that covers broadly the literature and/or culture of ancient Greece, and 1 course that covers broadly the literature and/or culture of ancient Rome

Senior requirement Two terms of Senior Tutorial (CLSS 498 and CLSS 499) or one-term Senior Tutorial (CLSS 498) and additional course

REQUIREMENTS OF THE MAJOR IN ANCIENT AND MODERN GREEK

The major in Ancient and Modern Greek offers students an opportunity to integrate the study of postclassical Greek language, history, and culture with the departmental program in ancient Greek and classical civilization. The major covers Hellenic civilization from the Bronze Age to the modern day, and traces the development of the language and the culture across traditionally drawn boundaries. The study of both ancient and modern Greek allows the student to appreciate how familiarity with one enriches understanding of the other, and to chart the development of a language which has one of the oldest continuous written traditions in the world. The literature, history, philosophy, religion, and art of the ancient Greek and Greco-Roman worlds are studied both as ends in themselves and also as a foundation for appreciating later (medieval, Ottoman, and modern) developments in these areas. Students are encouraged to develop a sense of the continuity of Greek language and culture, and an understanding of how Byzantine and modern forms relate to their ancient forebears.

Students in the Class of 2024 and 2025 With approval from the director of undergraduate studies (DUS), the following changes to the requirements of the major may be fulfilled by students who declared their major under previous requirements.

The major in Ancient and Modern Greek requires at least twelve term courses. These include four term courses at the level of 390 or above in ancient Greek, one of which should be GREK 403; and four term courses, to consist of: one term course that covers broadly the literature and/or culture of ancient Greece (a course with the designation CLCV at the 100- or 200-level), one term course that covers broadly the literature

and/or culture of ancient Rome (a course with the designation CLCV at the 100- or 200-level), one term course in ancient Greek history, and at least one additional term course in the history, art history, literature, or culture of the Greek-speaking Balkans or the Hellenic diaspora in the medieval, Ottoman, or modern period. Candidates are encouraged to take a wide range of courses in the areas of ancient philosophy, religion, art, and architecture. In addition, no fewer than two term courses in modern Greek must be elected at the intermediate level (MGRK 130, MGRK 140), or above.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must enroll in one or two semesters of the Classics Senior Tutorial (CLSS 498, or CLSS 498 and CLSS 499). The Senior Tutorial is designed to accommodate a range of culminating experiences in the field of Classics: an original work of scholarly research, an intensive study of language and literature based on a customized reading list, or an alternative creative project. A faculty advisor should be selected and a brief proposal submitted for approval by the end of the junior year. Students who elect the one-term Senior Tutorial must take one additional course to fulfill the requirements of the major; this can be any course designated CLCV, CLSS, LATN, or GREK; or—with approval of the DUS—a relevant course in another field of study.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required GREK 403

Distribution of courses 4 term courses in ancient Greek numbered 390 or higher, as indicated and incl GREK 403; 4 term courses in Greek and Roman history and lit, as indicated; 2 term courses in modern Greek at the intermediate level

Senior requirement Two terms of Senior Tutorial (CLSS 498 and CLSS 499) or one-term Senior Tutorial (CLSS 498) and additional course

CERTIFICATES OF ADVANCED LANGUAGE STUDY

The Classics Department offers a Certificate of Advanced Language Study to non-majors in ancient Greek and in Latin. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses in ancient Greek or Latin beyond the L4 level (four L5 courses; 400-level Greek or 400-level Latin courses), at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one course, conducted in the target language, such as

an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated to include the Certificate of Advanced Language Study.

For additional questions or concerns, please contact the DUS in Classics, Andrew Johnston. (andrew.johnston@yale.edu)

FACULTY OF THE DEPARTMENT OF CLASSICS

Professors Egbert Bakker, Kirk Freudenburg, Milette Gaifman, Verity Harte, Brad Inwood, Christina Kraus, Noel Lenski, Pauline LeVen, Joseph Manning

Associate Professor Andrew Johnston

Assistant Professors Jessica Lamont, Erika Valdivieso

Lecturers Susan Matheson, James Patterson, Timothy Robinson, Joseph Solodow

Climate Science and Solutions Certificate

Certificate director: Celli Hull (pincelli.hull@yale.edu)

This Certificate provides students with a foundation in basic climate science, anthropogenic climate change, and solutions, so they can be effective and informed leaders in all walks of life in the decades to come. In our lifetimes, the combined effects of climatic and environmental change will profoundly and pervasively alter the planet and the lives of all of us. In this day and age, effective leaders cannot afford to be ignorant of climate change and the many possible ways to mitigate it and its effects. Climate change is one of humanity's grand challenges and the goal of this Certificate is to prepare students to meet this challenge wherever their paths might lead.

REQUIREMENTS

Students must successfully complete six course credits. Three of the required courses must represent three different pillars of thought, each designed to provide the fundamentals, vocabulary, and interdisciplinary scope to engage in integrative conversations, collaborations, and endeavors on climate change and solutions. The three pillars of thought are: basic climate science; the science and impacts of anthropogenic climate change; and climate solutions.

From the first pillar, basic climate science, students gain an understanding of the components, processes, and feedbacks of the climate system, including an overview of ocean–atmosphere dynamics, the carbon cycle, atmospheric gases and their effects, radiative balance, and spatial and temporal climate variability.

From the second pillar, the science and impacts of anthropogenic climate change, students learn about drivers and projections for anthropogenic climate change, the feedbacks and uncertainties in regional to global climate models, regional to global climate change impacts, mitigation, and adaptation, and the interaction between climate and other aspects of global societal and environmental change.

From the third pillar, climate solutions, students learn about climate solutions, including the scientific, technological, and socio-political aspects of natural and technological solutions and strategies.

One of the remaining 3 courses needs to be designated as a seminar on climate science and solutions as approved by the certificate director. Three of the 6 courses must have a science, engineering, or technology focus.

Students may search for approved courses in Yale Course Search by using the attributes indicated:

- 1 basic climate science credit (YC Climate: Basic Climate Sci)
- 1 science and impacts of anthropogenic climate change credit (YC Climate: Anthropogenic)
- 1 climate solutions credit (YC Climate: Solutions)
- 1 seminar on climate science and solutions (YC Climate: Sci/Solutions Sem)
- 3 of 6 courses must have science, engineering, or technology focus (YC Climate Science: Sci/Eng/Tech)

Other courses may be approved by permission of the certificate director. An on-topic summer internship can replace one elective.

No more than two course credits fulfilling the requirements of the Climate Science and Solutions certificate may overlap with a major, a simultaneous degree, a multidisciplinary academic program, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. No more than four credits may come from a single department or school.

Completion Procedure and Advising

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Final approval of the certificate rests with the Certificate committee and director.

REQUIREMENTS OF THE CERTIFICATE

Number of courses 6 course credits

Distribution of courses 1 course in each of three pillars; 3 of the 6 required courses must focus on science, engineering, or technology, and 1 should be a seminar on the climate science and solutions of climate crisis

Cognitive Science

Director of undergraduate studies: Joshua Knobe (joshua.knobe@yale.edu), 102 C, 432-1699; www.yale.edu/cogsci

Cognitive science explores the nature of cognitive processes such as perception, reasoning, memory, attention, language, decision making, imagery, motor control, and problem solving. The goal of cognitive science, stated simply, is to understand how the mind works. Cognitive science is an inherently interdisciplinary endeavor, drawing on tools and ideas from fields such as psychology, computer science, linguistics, philosophy, economics, and neuroscience. Approaches include empirical studies of the ontogenetic and phylogenetic development of cognitive abilities, experimental work on cognitive processing in adults, attempts to understand perception and cognition based on patterns of breakdown in pathology, computational and robotic research that strives to simulate aspects of cognition and behavior, neuroscientific investigations of the neural bases of cognition using neural recording and brain scanning, and the development of philosophical theories of the nature of mind.

PREREQUISITE

An introductory survey course, CGSC 110, is normally taken by the end of the fall term of the sophomore year and prior to admission to the major.

REQUIREMENTS OF THE MAJOR

The requirements of the major for the B.S. and B.A. degrees are the same, except for the skills requirement and the senior requirement. Fourteen term courses, for a total of thirteen and one half course credits, are required for the major, including the introductory course and the senior requirement. Each major program must include the elements described below. The particular selection of courses must be approved by the director of undergraduate studies (DUS) in order to assure overall coherence. No course may be used to fulfill more than one requirement for the major.

Breadth requirement A breadth requirement introduces students to the subfields of cognitive science. Each major is required to take a course from four of the following six areas:

1. Computer science: CPSC 201
2. Economics and decision making: ECON 159
3. Linguistics: LING 110, 116, 130, 217, 232, 253
4. Neuroscience: CGSC 201, MCDB 320, NSCI 340, PSYC 160, 270
5. Philosophy: PHIL 126, 182, 269, 270, 271
6. Psychology: PSYC 110, S139E, 140

Depth requirement Students fulfill a depth requirement by completing six courses that focus on a specific topic or area in cognitive science. The depth courses must be chosen from at least two disciplines, and are typically drawn from the six cognitive science subfields. It may be possible to draw depth courses from other fields when necessary to explore the student's focal topic, in consultation with the DUS. All six depth courses must be at the intermediate or advanced level; for most disciplines, courses numbered

300 or above fulfill the requirement. With permission of the DUS, up to two directed reading or research courses may count toward the depth requirement.

Skills requirement Because formal techniques are fundamental to cognitive science, one skills course is required, preferably prior to the senior year. Courses that fulfill the skills requirement for the B.A. include CPSC 112, 202, LING 224, PSYC 200, and 270, and S&DS 100, 220 and 230. Other courses may fulfill this requirement with permission of the DUS. The skills requirement for the B.S. is fulfilled by PSYC 200 or another course with permission of the DUS.

Junior colloquium In the junior year, students are required to take CGSC 395, a half-credit colloquium in which majors discuss current issues and research in cognitive science and select a senior essay topic.

Repeat for credit Only one term of CGSC 471, 472, 473, or 474 may be offered toward the major.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major, except with permission of the DUS.

SENIOR REQUIREMENT

In the senior year, students take CGSC 491, a full-credit capstone course in which the senior essay is written. Students in the course meet regularly with one another and with the faculty to discuss current work in cognitive science and their own developing research projects. Students must take this course during their last spring term at Yale. If spring is not the student's final term, (e.g., a planned December graduation date), then it is possible to attend the class and complete some of the assignments, but not turn in the finished thesis until November. In this case, a grade of INC will be given for the Spring term. (Unlike other incomplete grades at Yale, an incomplete for a thesis does not expire.)

B.S. degree program The B.S. degree is typically awarded to students who conduct empirical research as part of their senior requirement. This normally includes designing an experiment and collecting and analyzing data.

B.A. degree program The B.A. degree is typically awarded to students who conduct a nonempirical senior essay. There are no restrictions on the research format for the B.A.

ADVISING AND APPLICATION TO THE MAJOR

Students may apply to enter the major at any point after the first year. Applications must be made in writing to the DUS. Applications must include (1) an official or unofficial transcript of work at Yale, (2) a brief statement of purpose, which indicates academic interests and expected focus within the areas of the Cognitive Science major, and (3) a list of the six upper-level courses that the student plans to take as part of the research focus. Application forms and answers to frequently asked questions are available on the program website.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite CGSC 110

Number of courses 14 term courses, for a total of 13.5 course credits (incl prereq and senior req)

Specific course required CGSC 395

Distribution of courses 1 course each in 4 of 6 subfields, as specified for breadth req; 6 courses in a specific topic or area, as specified for depth req; 1 skills course, as specified

Senior requirement *B.S.* – empirical research and senior essay in CGSC 491; *B.A.* – nonempirical senior essay in CGSC 491

FACULTY ASSOCIATED WITH THE PROGRAM IN COGNITIVE SCIENCE

Professors Woo-kyoung Ahn (*Psychology*), Stephen Anderson (*Emeritus*), Amy Arnsten (*School of Medicine*), Richard Aslin (*Haskins Laboratories*), John Bargh (*Psychology*), Paul Bloom (*Emeritus*) (*Psychology*), Hal Blumenfeld (*School of Medicine*), Claire Bowern (*Linguistics*), Marvin Chun (*Psychology*), Veneeta Dayal (*Linguistics*), Michael Della Rocca (*Philosophy*), Ravi Dhar (*School of Management*), Julie Dorsey (*Computer Science*), Robert Frank (*Linguistics*), Shane Frederick (*School of Management*), David Gelernter (*Computer Science*), Tamar Gendler (*Philosophy*), Laurence Horn (*Emeritus*) (*Linguistics*), Marcia Johnson (*Emeritus*), Christine Jolls (*Law School*), Dan Kahan (*Law School*), Frank Keil (*Psychology, Linguistics*), Joshua Knobe (*Philosophy*), Gregory McCarthy (*Psychology*), Nathan Novemsky (*School of Management, Psychology*), Kenneth Pugh (*School of Medicine*), Ian Quinn (*Music*), Holly Rushmeier (*Computer Science*), Laurie Santos (*Psychology*), Brian Scassellati (*Computer Science, Mechanical Engineering*), Brian Scholl (*Chair*) (*Psychology*), Sun-Joo Shin (*Philosophy*), Jason Stanley (*Philosophy*), Zoltán Szabó (*Philosophy*), Nick Turk-Browne (*Psychology*), Tom Tyler (*Law School*), Julie Van Dyke (*Haskins Laboratories*), Fred Volkmar (*School of Medicine*), David Watts (*Anthropology*), Karen Wynn (*Emeritus*) (*Psychology*), Gideon Yaffe (*Law School*), Raffaella Zanuttini (*Linguistics*), Gal Zauberman (*School of Management*), Steven Zucker (*Computer Science, Biomedical Engineering*)

Associate Professors Philip Corlett (*School of Medicine*), Jason Dana (*School of Management*), Yarrow Dunham (*Psychology*), Hedy Kober (*School of Medicine*), James McPartland (*Child Study Center*), Maria Piñango (*Linguistics*)

Assistant Professors Ryan Bennett (*Linguistics*), Steve Chang (*Psychology*), Philip Corlett (*School of Medicine*), Julian Jara-Ettinger (*Psychology*), Julia Leonard (*Psychology*), Samuel McDougle (*Psychology*), Al Powers (*School of Medicine*), Robb Rutledge (*Psychology*), Marynel Vázquez (*Computer Science*), Ilker Yildirim (*Psychology*)

Lecturer Daylian Cain (*School of Management*)

See visual roadmap of the requirements.

College Seminars

The Residential College Seminar program is designed to enhance the intellectual life of the residential colleges by offering courses that fall outside typical departmental structures, often taught by instructors whose professional life lies outside the university. Each residential college sponsors one seminar each term, and a defining feature of the program is that undergraduates play a central role in the seminar selection process. Each residential college has a student committee responsible for evaluating seminar proposals and interviewing candidates.

Course descriptions for college seminars for the fall and spring terms can be found in Yale Course Search. The online listings contain course titles, descriptions, and prerequisites. Course syllabuses are available on Canvas @ Yale.

Students apply to college seminars during registration. Students from the sponsoring college have priority admission to the first six roster spots in each seminar. Students may apply to no more than two college seminars in a given term and ordinarily may not enroll in more than one college seminar in a term. Students may not ordinarily enroll in more than four college seminars in their Yale College career. Auditing is not permitted in college seminars.

Comparative Literature

Directors of undergraduate studies: Samuel Hodgkin (samuel.hodgkin@yale.edu), 320 York St., Rm. 244, 203-432-2760; registrar: K (maryjane.stevens@yale.edu)atie Hultgren (katie.hultgren@yale.edu); complit.yale.edu/literature-major

The Comparative Literature major allows students to address fundamental questions about the nature, function, and value of literature in a broadly comparative context. Students read and write about a wide variety of literary works across periods, genres, and national traditions. They investigate ancient and contemporary approaches to literary study, theories and methods of comparison, and the relationship of literature to film and other media. Majors have the freedom to construct a program of study that reflects their intellectual goals. All prospective majors should register with the director of undergraduate studies (DUS), who will work with them to develop a coherent sequence of courses suited to their individual interests.

The Comparative Literature major offers four unique concentrations: Literature and Comparative Cultures; Intensive Language; Film; and Literary Translation. These concentrations share the same core courses. Other courses are normally chosen from different language and literature programs, many of which offer courses on literature and film in translation. Among these programs are African American Studies, Classics, East Asian Languages and Literatures, English Language and Literature, Film and Media Studies, French, German Studies, Italian Studies, Near Eastern Languages and Civilizations, Portuguese, Russian and other Slavic Languages and Literatures, and Spanish.

Prospective majors are strongly encouraged to begin the study of a foreign language as early as possible in their academic careers and to continue such study throughout their time at Yale. All concentrations of the Comparative Literature major require students to have advanced (L4/L5) competence in at least one foreign language. Students interested in graduate study in comparative literature should be aware that many programs require reading knowledge of two or three foreign languages.

REQUIREMENTS OF THE MAJOR

The Comparative Literature major requires twelve term courses, including the senior requirement and two required foundational seminars, one of which must be LITR 130 and the other may be LITR 140 or 143 or 348. Beyond the two required courses and the senior essay, the major requires nine term courses, with specific requirements for each concentration. All concentrations require students to take courses in at least one foreign literature; all have a period requirement and a theory requirement. Additionally, prospective majors must have an L5 in the foreign language in which they plan to work (in some cases an L4 is acceptable with DUS advisement).

For the period requirement, students must take at least one course in three of five historical periods: (1) Antiquity; (2) Medieval; (3) Early Modern; (4) 17th–18th centuries; and (5) the Modern period (1800–present). Courses taken from other departments (excluding Directed Studies) may fulfill the period requirement with DUS permission.

For the theory requirement, students must take one course that involves a significant component of literary or cultural theory. Students who wish to know if a course,

particularly those offered in other departments, may count toward this requirement should consult the DUS.

The Literature and Comparative Cultures concentration

Prospective majors electing the Literature and Comparative Cultures concentration must take two required foundational seminars; LITR 130 and one of LITR 140, 143, or 348. Beyond the two required courses and the senior essay, the concentration requires three courses in a foreign literature (see below), three courses that fulfill the period requirement, two elective courses, and one theory course. Period courses, elective courses, and the theory course may be taken in any literature department and may include two courses in a related discipline that has direct bearing on the student's program of study in literature, such as history of art, philosophy, anthropology, music, or theater studies. One of the elective courses may be in creative writing or Directed Studies.

Foreign literature requirement Majors are required to take at least three literature courses in one foreign language. One of these courses may award the language distributional requirement (L5) in an ancient or modern foreign literature, in which the literature is read in the original language. In some cases, the L5 course with which students entered the major can be counted as one of the three foreign literature courses. Two courses can be taken at a basic literature level (normally equivalent to the third year of language study), but at least one course must be taken at an advanced level (normally equivalent to the fourth year of language study or higher).

The Intensive Language concentration

Prospective majors electing this concentration focus their plan of study on two foreign literatures studied in the original language. They must take two required foundational seminars: LITR 130 and LITR 140; three courses in one foreign literature (one of which may be an L5 course); two courses in a second foreign literature (one of which may be an L5 course); three courses that fulfill the period requirement; and one course that involves a significant element of literary or cultural theory. In all five of the foreign literature courses, the literature must be read in the original language.

The Film concentration

Students in the Film concentration focus their plan of study on film and media. They must take two required foundational seminars: LITR 130 and LITR 143 (or equivalent approved by DUS); three courses that fulfill the period requirement; and they must take two foreign literature courses and one course in film theory. They must choose their three electives from courses in Film and Media Studies.

The Literary Translation concentration

Students in the Literary Translation concentration focus on the theory and practice of literary translation. They must take two required foundational seminars: LITR 130 and LITR 348 (or equivalent approved by DUS); three courses that fulfill the period requirement; three courses in one foreign literature (one of which can be an L5 course); one course in literary or cultural theory; and two courses that engage with some aspect of translation studies. The DUS can provide a list of qualifying courses.

Credit/D/Fail A maximum of two courses taken Credit/D/Fail may count toward the major, with permission of the DUS. None of the specific required courses may be taken Credit/D/Fail.

SENIOR REQUIREMENT

For the senior essay (LITR 491, or LITR 492, 493), students develop a research topic of their choice and work closely with a faculty adviser, preferably from the department. Normally, the essay makes use of texts in the language of their original composition. Any exceptions must be approved by the DUS. Deadlines for the prospectus, the rough draft, and the completed essay are listed on the departmental website.

The senior essay may be written over one term (LITR 491) or over two terms (LITR 492, 493). Students with an especially well-developed project may petition to write a yearlong senior essay. Interested juniors must apply by the last day of classes in the spring term. Students may count the second term of the essay as one elective course toward the total number of courses required for the major. Students expecting to graduate in May enroll in LITR 492 during the fall term and complete their essays in LITR 493 in the spring term. December graduates enroll in LITR 492 in the spring term and complete their essays in LITR 493 during the following fall term. Students planning to begin their essay in the spring term should notify the DUS by the last day of classes in the fall term.

COURSE SUBSTITUTIONS

A literature course taught in English translation is sometimes suitable as a foreign literature course. In such cases, majors are expected to request additional assignments from their instructors that demonstrate they have engaged with the texts in the original language. They should submit the appropriate form, signed by the instructor, attesting to their intent to do so. The registrar or the DUS can provide this form; students should submit it to the DUS along with their course schedule.

Non-native speakers of English who are granted permission by Yale College to complete the language distributional requirement by taking ENGL 114, 115, 120, ENGL 121, or 450 may take a total of three English literature courses to fulfill the three foreign literature course requirement, or they may fulfill the major requirements by taking three courses in a third language.

STUDY ABROAD

Comparative Literature majors are encouraged to consider spending a summer, a term, or a year abroad. One course taken through international programs and approved by Yale College may, with permission of the DUS, be applied to the literature requirement.

COURSES WITH ADVANCED LITERATURE INSTRUCTION

The following table lists languages in which advanced literature instruction is available at Yale, specifying courses that fulfill the basic and advanced literature requirements for the majors. Courses with numbers higher than those listed also normally fulfill the requirement, providing that they focus on literature (rather than language) and that the literature is read in the original language.

Other ancient and modern languages, including those from Africa, South Asia, and the Middle East, may be suitable for the major if a qualified faculty adviser is available to supervise the student.

Language	Basic Literature Course	Advanced Literature Course
Arabic	ARBC 150, 151	ARBC 161 or 165
Chinese	CHNS 150, 151	CHNS 170 or 171
French	FREN 170	Courses in French numbered 200 or higher
German	Courses in German numbered 170 or higher	Courses in German numbered 200 or higher
Ancient Greek	GREK 131 or 141	Ancient Greek courses numbered 400 or higher
Modern Hebrew	By arrangement with instructor	By arrangement with instructor
Italian	ITAL 162 and 172	Courses in Italian numbered 200 or higher
Japanese	JAPN 150, 151	JAPN 170 or 171
Korean	KREN 150, 151	EALL 470 or 471
Latin	LATN 131 or 141	Latin courses numbered 400 or higher
Persian	PERS 150 and above	PERS 150 and above
Portuguese	By arrangement with instructor	By arrangement with instructor
Russian	RUSS 150, 151	Courses in Russian numbered 170 or higher
Spanish	SPAN 261, 262, 266, or 267	Courses in Spanish numbered 300 or higher

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required *All concentrations*—LITR 130; *Literature and Comparative Cultures*—1 of LITR 140, 143, or 348; *Intensive Language*—LITR 140; *Film*—LITR 143 or equivalent; *Literary Translation*—LITR 348 or equivalent

Distribution of courses *All concentrations*—3 period courses, as specified; *Literature and Comparative Cultures*—3 courses in a foreign lit, as specified, 1 course in literary or cultural theory, 2 elective courses; *Intensive Language*—3 courses in one foreign lit, 2 courses in a second foreign lit, 1 course in literary or cultural theory; *Film*—2 foreign lit courses, 1 course in film theory; 3 electives in Film and Media Studies; *Literary Translation*—3 courses in a foreign lit, as specified, 1 course in literary or cultural theory, 2 courses in translation studies

Senior requirement One-term senior essay (LITR 491); or two-term senior essay (LITR 492 and LITR 493)

FACULTY OF THE DEPARTMENT OF COMPARATIVE LITERATURE

Professors Dudley Andrew, Peter Brooks (*Emeritus*), Rüdiger Campe, Katerina Clark, Roberto González Echevarría, Martin Hägglund, Hannan Hever, Carol Jacobs (*Emeritus*), Pericles Lewis, Rainer Nägele (*Emeritus*), David Quint, Katie Trumpener, Jing Tsu, Jane Tylus, Jesús Velasco

Associate Professors Robyn Creswell, Marta Figlerowicz, Moira Fradinger, Ayesha Ramachandran

Assistant Professor Samuel Hodgkin

Senior Lecturer Peter Cole

Lecturers Jan Hagens, Candace Skorupa, George Syrimis

Affiliated Faculty Rolena Adorno (*Spanish & Portuguese*), R. Howard Bloch (*French*), Francesco Casetti (*Film & Media Studies*), Kang-i Sun Chang (*East Asian Languages & Literatures*), Michael Denning (*American Studies*), Alice Kaplan (*French*), Tina Lu (*East Asian Languages & Literatures*), John MacKay (*Slavic Languages & Literatures*), Giuseppe Mazzotta (*Italian*), Christopher L. Miller (*French*), Joseph Roach (*English*), Maurice Samuels (*French*), Ruth Yeazell (*English*)

See visual roadmap of the requirements.

Computer Science

Directors of undergraduate studies: Y. Richard Yang (yang.r.yang@yale.edu); 432-6400, AKW 208A; cpsc.yale.edu

The Department of Computer Science offers both B.S. and B.A. degree programs, as well as four combined major programs in cooperation with other departments: Electrical Engineering and Computer Science, Computer Science and Economics, Computer Science and Mathematics, and Computer Science and Psychology. Each program not only provides a solid technical education but also allows students either to take a broad range of courses in other disciplines or to complete the requirements of a second major.

The Computer Science and combined major programs share a common core of five computer science courses. The first is CPSC 201, a survey that demonstrates the breadth and depth of the field to students who have taken the equivalent of an introductory programming course. The remaining core courses cover discrete mathematics (CPSC 202 or MATH 244), data structures (CPSC 223), systems programming and computer architecture (CPSC 323), and algorithm analysis and design CPSC 365, 366 or 368. Only one of CPSC 365, 366, and 368 may be taken for major credit. Together these courses include the material that every major should know.

The core courses are supplemented by electives (and, for a combined major, core courses in the other discipline) that offer great flexibility in tailoring a program to each student's interests. The capstone is the senior project (CPSC 490), through which students experience the challenges and rewards of original research under the guidance of a faculty adviser.

Prospective majors are encouraged to discuss their programs with the director of undergraduate studies (DUS) as early as possible.

INTRODUCTORY COURSES

The department offers a broad range of introductory courses to meet the needs of students with varying backgrounds and interests. Except for CPSC 200 and CPSC 201, none assumes previous knowledge of computers.

1. CPSC 100 is taught jointly with Harvard University and teaches students majoring in any subject area how to program a computer and solve problems. No prior programming experience is required. Students with previous programming experience should consider taking CPSC 201 instead. This course satisfies the Quantitative Reasoning distributional requirement.
2. CPSC 110 teaches programming for humanities and social sciences using the Python programming language. No prior programming experience is required. This course satisfies the Quantitative Reasoning distributional requirement.
3. CPSC 112 teaches students majoring in any subject area how to program a computer and solve problems using the Java programming language. No prior programming experience is required. Students with previous programming experience should consider taking CPSC 201 instead. This course satisfies the Quantitative Reasoning distributional requirement.

4. CPSC 134 provides an introduction to computer music, including musical representations for computing, automated music analysis and composition, interactive systems, and virtual instrument design.
5. CPSC 150 explores how some of the key ideas in computer science have affected philosophy of mind, cognitivism, connectionism, and related areas. This humanities-style course requires a significant amount of reading and writing a paper, and satisfies the Writing and the Humanities and Arts distributional requirements.
6. CPSC 151 studies the history of the graphical user interface in an attempt to guess its future. This course satisfies the Writing distributional requirement.
7. CPSC 183 explores the myriad ways that law and technology intersect, with a special focus on the role of cyberspace. This course satisfies the Social Sciences distributional requirement.
8. CPSC 184 focuses on the evolving and oftentimes vexing intellectual property regime of the new digital age. This course satisfies the Social Sciences and the Humanities and Arts distributional requirements.
9. CPSC 185 covers the evolution of various legal doctrines with and around technological development. This course satisfies the Social Sciences and the Writing distributional requirements.
10. CPSC 200, intended as a survey course for non-majors, focuses on practical applications of computing technology while examining topics including computer hardware, computer software, and related issues such as security and software engineering. This course satisfies the Quantitative Reasoning distributional requirement.
11. CPSC 201 teaches the basic concepts, techniques, and applications of computer science, including systems (computers and their languages) and theory (complexity and computability). Students with sufficient programming experience may elect CPSC 201 without taking CPSC 112. (These courses meet at the same time so that students are easily able to change levels if necessary.) This course satisfies the Quantitative Reasoning distributional requirement.
12. CPSC 202 presents the formal methods of reasoning and the concepts of discrete mathematics and linear algebra used in computer science and related disciplines. This course satisfies the Quantitative Reasoning distributional requirement.
13. CPSC 210 examines the political challenges wrought by massive increases in the power of computational and communication technologies and the potential for citizens and governments to harness those technologies to solve problems. This course satisfies the Social Sciences distributional requirement.

REQUIREMENTS OF THE MAJOR

The B.S. and the B.A. degree programs have the same required five core courses: CPSC 201; CPSC 202 or MATH 244; CPSC 223; CPSC 323; and CPSC 365 or 366 or 368.

B.S. degree program The B.S. degree program requires a total of twelve term courses: the five core courses, six intermediate or advanced courses in Computer Science, and the senior requirement.

B.A. degree program The B.A. degree program requires a total of ten term courses: the five core courses, four intermediate or advanced courses in Computer Science, and the senior requirement.

Combined B.S./M.S. degree Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. General eligibility requirements are described in the Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Specific requirements for the combined degree in Computer Science are as follows:

1. Candidates must satisfy the Yale College requirements for the B.S. degree in Computer Science.
2. At the end of their fifth term of enrollment candidates must have earned at least nine of their Computer Science required course credits, which together with three additional Computer Science required course credits, satisfy the requirements for the B.S. in Computer Science. Candidates must also have achieved A grades in at least three quarters of these courses.
3. Candidates must also complete eight graduate courses from the approved list, up to two of which may, with the permission of the DUS and the director of graduate studies, also be applied toward completion of the B.S. degree. At most, one of these eight courses may be CPSC 690, 691, or 692. All eight graduate courses must be completed in the final four terms of enrollment, and at least six of them must be completed in the final three terms of enrollment.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major. All courses in the major must be taken for a letter grade.

SENIOR REQUIREMENT

In the senior year, students must take CPSC 490, an independent project course, in which a student selects an adviser to conduct original research with substantial work in a subfield of computer science. With permission of the DUS, students may enroll in 490 more than once or before their senior year.

ADVISING

All Computer Science majors in the sophomore, junior, and senior years should review their programs with their class advisers and the DUS. Students majoring in Computer Science are advised to complete CPSC 201 and 223 by the end of their sophomore year.

Electives The field of computer science has broadened substantially in the last few decades and the Computer Science department advises its majors to choose intermediate and advanced electives covering the breadth of computer science, including theoretical computer science; computer systems and languages (e.g., database, networking, operating systems, programming languages, and systems security); and computer applications (e.g., artificial intelligence, computer graphics, computer vision, human-computer interactions, machine learning, natural language processing, and robotics).

The Computer Science department encourages interdisciplinary study in which computer science plays a major role. Advanced courses in other departments that involve concepts from computer science and are relevant to an individual program may,

with permission of the DUS, be counted toward the requirements, but no more than two such courses may be counted toward the B.S., and no more than one toward the B.A.

Students interested in using computers to solve scientific and engineering problems are advised to take CPSC 440 as well as computational courses offered in Applied Mathematics and in Engineering and Applied Science.

The core mathematical background necessary to complete the Computer Science major is provided in CPSC 202. However, many advanced courses in graphics, computer vision, neural networks, and numerical analysis assume additional knowledge of linear algebra and calculus. Students who plan to take such courses as electives and who are unsure whether they have the appropriate mathematical background are encouraged to take MATH 222 or 225, MATH 226, and MATH 120.

Typical programs For students who already know how to program, typical B.S. programs starting in the first and sophomore years are indicated below. For typical B.A. programs, two of the electives would be omitted.

First-Year	Sophomore	Junior	Senior
CPSC 201	CPSC 202 and CPSC 323	Two electives	CPSC 490
CPSC 223	CPSC 365 or 366 One elective	Two electives	One elective
	Sophomore	Junior	Senior
	CPSC 223	CPSC 365 or 366	Two electives
	CPSC 201	CPSC 323	CPSC 490
	CPSC 202	Two electives	Two electives

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses *B.S.* – 12 term courses taken for letter grades (incl senior project);
B.A. – 10 term courses taken for letter grades (incl senior project)

Specific courses required *B.S. and B.A.* – CPSC 201; CPSC 202 or MATH 244;
CPSC 223; CPSC 323; and CPSC 365 or 366 or 368

Distribution of courses *B.S.* – 6 adtl intermediate or advanced Comp Sci courses;
B.A. – 4 adtl intermediate or advanced Comp Sci courses

Substitution permitted Advanced courses in other depts, with DUS permission

Senior requirement Senior project (CPSC 490)

CERTIFICATE IN PROGRAMMING

Certificate in programming advisor: Theodore Kim, AKW 412; cpsc.yale.edu

The Certificate in Programming prepares students to program computers in support of work in any area of study. While the certificate does not provide the grounding in theory and systems that the computer science majors do, it does provide a short path

to programming literacy that can be completed in a span of four terms. Majors in Computer Science, and in the joint programs with Economics, Electrical Engineering, Mathematics, and Psychology, or in Computing and the Arts may not pursue the Certificate.

Refer to the Computer Science website for more information.

PREREQUISITE

The prerequisite for the Certificate is an introductory programming course, CPSC 100, 110, 112, S115 or successful completion of an AP Computer Science course.

REQUIREMENTS OF THE CERTIFICATE

Students may not use any of the five required courses, indicated below, to satisfy the requirements of any major or other certificate. If such a course is required for another program, the student must substitute another course from the same category or a more advanced one for the Programming Certificate. No course taken Credit/D/Fail may be used to satisfy any of the requirements; no course may be used to satisfy more than one of them.

Programming One from CPSC 201 or CPSC 200

Data structures CPSC 223

Advanced programming One from CPSC 327 or CPSC 323

A programming elective A CPSC course with CPSC 223 as a listed or implied prerequisite and a primary focus on programming (such as CPSC 424, 437, 439, 446, or 478) or a second course that satisfies the advanced programming requirement

An applications or algorithms elective Either a programming in context course that requires significant programming (such as CPSC 334, 335, 376, 431, 432, 474, 477, or LING 380) or a course in algorithms (such as CPSC 365 or 366 or 368)

ADVISING

Theodore Kim from the Department of Computer Science is the Certificate Coordinator. He advises students pursuing the Certificate. Exceptions to the requirements, other than the substitution of a more advanced course for a required one, are limited.

SUMMARY OF REQUIREMENTS

Prerequisite CPSC 100, 110, 112, S115 or AP Computer Science course

Number of courses 5 term courses

Specific courses required CPSC 201 or 200; CPSC 223; CPSC 327 or 323

Distribution of courses 2 electives, as specified

FACULTY OF THE DEPARTMENT OF COMPUTER SCIENCE

Professors Dana Angluin (*Emeritus*), James Aspnes, *Dirk Bergemann, Julie Dorsey, Joan Feigenbaum, Michael Fischer, David Gelernter, *Mark Gerstein, Dragomir Radev, †Vladimir Rokhlin, Holly Rushmeier, Brian Scassellati, Martin Schultz (*Emeritus*),

Zhong Shao (*Chair*), Avi Silberschatz, †Daniel Spielman, Nisheeth Vishnoi, Y. Richard Yang (*DUS*), Lin Zhong, †Steven Zucker

Associate Professors Abhishek Bhattacharjee, Yang Cai, Theodore Kim, Smita Krishnaswamy, Charalampos Papamanthou, Ruzica Piskac, Robert Soulé

Assistant Professors *Kim Blenman, Arman Cohan, Yongshan Ding, Benjamin Fisch, Tesca Fitzgerald, Anurag Khandelwal, Daniel Rakita, Marynel Vázquez, Andre Wibisono, Rex Ying

Senior Research Scientists Robert Bjornson, Andrew Sherman

Senior Lecturers James Glenn, Stephen Slade

Lecturers Timothy Barron, Andrew Bridy, Ozan Erat, Jay Lim, Dylan McKay, Cody Murphey, Sohee Park, Scott Petersen, Brad Rosen, Inyoung Shin, Alan Weide, Cecillia Xie

*A secondary appointment with primary affiliation in another department or school.

†A joint appointment with primary affiliation in another department or school.

For a complete list of Computer Science Department personnel, visit the department website.

See visual roadmap of the requirements.

Computer Science and Economics

Directors of undergraduate studies: Philipp Strack (philipp.strack@yale.edu)

Computer Science and Economics (CSEC) is an interdepartmental major for students interested in the theoretical and practical connections between computer science and economics. The B.S. degree in CSEC provides students with foundational knowledge of economics, computation, and data analysis, as well as hands-on experience with empirical analysis of economic data. It prepares students for professional careers that incorporate aspects of both economics and computer science and for academic careers conducting research in the overlap of the two fields. Topics in the overlap include market design, computational finance, economics of online platforms, machine learning, and social media. The CSEC major requires some classes in the intersection between Computer Science and Economics which are not mandatory for either major.

PREREQUISITES

Prerequisite to this major is basic understanding of computer programming, discrete math, calculus, microeconomics and macroeconomics. Grades of 4 or 5 on high-school AP computer science, statistics, calculus, microeconomics, and macroeconomics signal adequate preparation for required courses in the CSEC major. For students who have not taken these or equivalent courses in high school, the programming prerequisite may be satisfied with CPSC 100 or CPSC 112; the discrete mathematics prerequisite may be satisfied with CPSC 202 or MATH 244; the calculus prerequisite may be satisfied with MATH 112; the microeconomics prerequisite may be satisfied with ECON 110 or ECON 115; and the macroeconomics prerequisite may be satisfied with ECON 111 or ECON 116. Other courses may suffice, and students should consult the director of undergraduate studies (DUS) and their academic advisers if they are unsure whether they have the prerequisite knowledge for a particular required course.

REQUIREMENTS OF THE MAJOR

The B.S. degree program requires successful completion of fourteen term courses (not including courses taken to satisfy prerequisites) and the senior project. Nine of the fourteen courses are listed below; the remaining five courses are electives. With permission of the DUS and the academic adviser, a student may substitute a more advanced course in the same area as a required course. When a substitution is made, the advanced course counts toward the nine required courses and *not* toward the five electives.

The required courses include CPSC 201; 223; 323; 365 or 366 or 368; ECON 121 or 125; two courses in econometrics (ECON 117 and 123 or ECON 135 and 136); one course in game theory ECON 351 or CPSC 455; one course in the intersection of computer science and economics (e.g., CPSC 455, ECON 417, 433, 486, 441, 435, 478 or CPSC 474) which may not also count as one of the five remaining electives or for the game theory requirement. S&DS 241 and S&DS 242 may be taken instead of ECON 135. Only one of CPSC 365, 366, 368 may be taken for major credit.

Elective courses are essentially those courses that count as electives in the Computer Science major, the Economics major, or both. ECON 122 and S&DS 365 can count as an elective, ECON 159 and ECON 672 can count as Economics electives. At least two electives must be taken in the Computer Science department, and at least one must

be taken in the Economics department. With the permission of the academic adviser, a student may use as the fourth and/or fifth elective (one or two courses) in related departments that do not usually serve as electives in Computer Science or Economics.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

In the senior year, each student must complete CSEC 491, a one-term independent-project course that explicitly combines both techniques and subject matter from computer science and economics. A project proposal must be approved by the student's academic adviser and project adviser, and it must be signed by the DUS by the end of the third week of the term.

Distinction in the Major Computer Science and Economics majors may earn Distinction in the Major if they receive grades of A or A- in at least three quarters of their courses in the major (not including courses taken to satisfy prerequisites), and their senior-project advisers determine that their senior projects are worthy of distinction.

ADVISING

Approval of course schedules Students considering the major but not yet declared should arrange to meet with the DUS during the registration period to ensure that their proposed course schedules are appropriate. Similarly, declared majors should meet with their academic advisers to ensure that they are on track to satisfy all of the requirements of the major. Course schedules must be signed by the DUS each term, and they must be approved by an academic adviser before the DUS signs them.

Transfer credit Students who take a term abroad or take summer courses outside of Yale may petition the DUS to count at most two courses from outside Yale toward the requirements of the major. Students who take a year abroad may petition to count at most three courses. Many courses taken outside Yale do not meet the standards of the CSEC major; therefore, students should consult with their academic advisers and the DUS *before* taking such courses. Courses taken outside Yale may not be counted toward the major requirements in intermediate microeconomics, econometrics, or the intersection of computer science and economics.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites Basic knowledge of programming, discrete math, calculus, microeconomics, and macroeconomics as determined by DUS and academic advisers, as indicated

Number of courses 14 term courses (not incl prereqs or senior req)

Specific courses required CPSC 201, 223, and 323; CPSC 365 or 366 or 368; ECON 121 or 125; ECON 117 and 123 or ECON 135 and 136; ECON 351 or CPSC 455

Distribution of courses 1 course in intersection of CPSC and ECON, as specified; 5 electives as specified

Substitution permitted S&DS 241 and S&DS 242 may substitute for ECON 135; a more advanced course in the same area may substitute for a required course with DUS and academic adviser permission

Senior requirement CSEC 491

Computer Science and Mathematics

Directors of undergraduate studies: Y. Richard Yang (yang.r.yang@yale.edu) (Computer Science), AKW 208A, 432-6400; Andrew Neitzke (Mathematics) DL 425; associate director of undergraduate studies: Miki Havlickova (Mathematics), DL 446; Math DUS email (math.dus@yale.edu)

Computer Science and Mathematics is an interdepartmental major for students who are interested in computational mathematics, the use of computers in mathematics, mathematical aspects of algorithm design and analysis, and theoretical foundations of computing.

REQUIREMENTS OF THE MAJOR

The major requires fourteen term courses as well as a senior project. Six of the fourteen courses must be in computer science: CPSC 201; CPSC 223, 323; and CPSC 365 or 366 or 368; one advanced course with significant mathematical content; and one additional advanced course other than CPSC 490. Only one of CPSC 365, 366, and 368 may be taken for major credit. The remaining eight courses must be in mathematics: MATH 120, either MATH 225 or 226, MATH 244, and five additional term courses numbered above MATH 200 other than MATH 470, 480 and 481. MATH 222 is not recommended as a substitute for MATH 225 or 226, as it does not provide an introduction to proof writing, which is an essential skill for completing upper level mathematics courses.

Students who completed multivariable calculus during high school may consult the DUSes about replacing MATH 120 with a higher level mathematics course. MATH 230 and MATH 231 may replace (but do not count in addition to) MATH 120 and MATH 225 or 226.

A course must be listed with a MATH number to count toward the mathematics requirements and must be listed with a CPSC number to count toward the computer science requirements – substitutions from other departments are not allowed.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

The senior requirement is a project or an essay on a topic acceptable to both departments. Students typically enroll in CPSC 490 or MATH 475. An oral report on the mathematical aspects of the project must be presented to the Mathematics faculty. Permission must be obtained in writing from the director of undergraduate studies (DUS) of both departments before embarking on the project or the essay.

ADVISING

The entire program of each student majoring in Computer Science and Mathematics must be approved by the DUS in each department.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses, 6 in computer science and 8 in math (not incl senior req)

Specific courses required CPSC 201; CPSC 223, 323; CPSC 365 or 366 or 368;
MATH 120; MATH 225 or 226; MATH 244

Distribution of courses 2 addtl courses in computer science with 1 adv course with significant mathematical content and 1 adv course other than CPSC 490; 5 addtl courses in math numbered above 200 (may not be MATH 470, 480 or 481)

Substitution permitted: MATH 230 and MATH 231 for MATH 120 and MATH 225 or 226

Senior requirement Senior project or senior essay on topic acceptable to Comp Sci and Math depts with written approval from both DUSes; oral report to Math dept on mathematical aspects of the project

Computer Science and Psychology

Directors of undergraduate studies: Y. Richard Yang (yang.r.yang@yale.edu) (Computer Science); Yarrow Dunham (yarrow.dunham@yale.edu) (Psychology)

Computer Science and Psychology is an interdepartmental major designed for students interested in integrating work in these two fields. Each area provides tools and theories that can be applied to problems in the other. Examples of this interaction include cognitive science, artificial intelligence, and biological perception.

PREREQUISITE

The prerequisite for the major is PSYC 110, from which students who have scored 5 on the Advanced Placement test in Psychology are exempt. Beyond the prerequisite, the major requires fourteen term courses as well as a senior project.

REQUIREMENTS OF THE MAJOR

Eight of the fourteen required courses must be in computer science: CPSC 201, 202, 223, 323, and CPSC 365 or 366 or 368, and three advanced computer science courses in artificial intelligence (examples of such courses are those in the range CPSC 470–CPSC 477, CPSC 452, 453, CPSC 481–484). CPSC 280 and 490 may not be counted as one of these courses. MATH 244 may substitute for CPSC 202. Only one of CPSC 365, 366, and 368 may be taken for major credit.

The remaining six courses must be in psychology, including PSYC 200; at least one from PSYC 210–299; at least two psychology courses from the social science point of view; and at least two courses from the natural science point of view. At least one of the two psychology courses from both the social science point of view and the natural science point of view must be designated as Core in the course listings. Refer to the Psychology program overview for a listing of courses that fulfill the social science and natural science requirements and a description of courses designated as Core.

With the permission of both directors of undergraduate studies (DUSes), a course in cognitive psychology or cognitive science that is highly relevant to the major and that is not counted as one of the six courses in psychology may substitute for one of the courses in artificial intelligence. An additional course in psychology and an examination arranged with the instructor of PSYC 200 may substitute for PSYC 200.

Credit/D/Fail No course in computer science taken Credit/D/Fail may be counted toward the major; no more than one course in psychology taken Credit/D/Fail may be counted toward the major. No 200-level course in psychology taken Credit/D/Fail may be counted.

SENIOR REQUIREMENT

Students must take either CPSC 490 or PSYC 499, and the project must be approved by the DUS in each department.

ADVISING

The entire program of each student majoring in computer science and psychology must be approved by the DUS in each department.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite PSYC 110

Number of courses 14 term courses beyond prereq (not incl senior project)

Specific courses required CPSC 201, 202, 223, 323, and CPSC 365 or 366 or 368;
PSYC 200

Distribution of courses 8 courses in CPSC, with 3 advanced AI courses; 6 courses in PSYC, incl PSYC 200; at least 1 additional course from PSYC 210–299; at least 2 from social science point of view and 2 from natural science point of view, with 1 designated Core course from each, as specified

Substitution permitted With permission of both DUSes, and as specified: MATH 244 for CPSC 202; 1 relevant course in cognitive psychology or cognitive science for 1 course in AI; 1 addtl course in PSYC and exam arranged with instructor for PSYC 200

Senior requirement CPSC 490 or PSYC 499, with project approved by DUS in each dept

Computing and Linguistics

Director of undergraduate studies: Robert Frank (robert.frank@yale.edu) (Linguistics); Computing and Linguistics website

The Computing and Linguistics major provides multidisciplinary training in the computational study of human language, the development of systems for natural language processing, and the automated analysis of textual data in applications in the humanities, social sciences, and sciences. Students learn the foundational tools and methods that underlie this work, including areas of computer science, statistics and data science, and linguistics, and apply them to some empirical domain, through coursework and an independent research project in the senior year.

The B.A. in Computing and Linguistics exposes students to the fundamental ideas and foundational techniques of the field, while the B.S. provides more extensive training and engagement in research, preparing students for graduate work in the area.

PREREQUISITES

There are three prerequisites for this major and they fall in three areas of study: (1) *statistics*, satisfied through S&DS 100, 101–106, 123, or 220, or comparable background in statistics (e.g., through a score of 5 on the AP Statistics exam) as approved by the director of undergraduate studies (DUS); (2) *programming*, satisfied through CPSC 100 or 112 or comparable programming experience as approved by the DUS; and (3) *linguistics*, satisfied through one 100 level Linguistics course. It is also advisable that students have some background in single-variable calculus, prior to beginning this major.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program requires 11 term credits beyond the prerequisites and not including the senior requirement. Core courses, as listed below, are required from the following categories: 2 math core courses; 1 statistics core course (S&DS 238); 2 linguistics core courses; 2 computation core courses; 3 advanced courses; 1 elective, and 1 senior requirement course.

B.S. degree program The B.S. degree program requires 14 term credits beyond the prerequisites and not including the senior requirement. Core courses, as listed below, are required from the following categories: 2 math core courses; 2 statistics core courses; 3 linguistics core courses; 2 computation core courses; 3 advanced courses; 2 electives, and 2 senior requirement courses.

Math core courses Both B.A. and B.S. degree students must take one course in proof-based discrete mathematics (one of MATH 244, LING 224, or CPSC 202) and one course in linear algebra (either MATH 222 or MATH 225).

Statistics core courses These provide foundations in probability and statistical theory. B.A. degree students satisfy this requirement by taking S&DS 238; B.S. degree students choose between two options (1) one of S&DS 240 or S&DS 241, together with S&DS 242; (2) S&DS 238 and either S&DS 230 or any S&DS course numbered 242 or above.

Linguistics core courses These courses, LING 232, 253, and 263, expose students to the nature of linguistic structure and its variability across languages, at the level of sound (phonology), form (syntax) and meaning (semantics). B.A. degree students must take 2 out of these 3 courses, while B.S. degree students must take all 3.

Computation core courses Computational studies of language rest crucially on the foundations of computer science and programming. To this end, both B.A. and B.S. degree students must take CPSC 201 and 223.

Advanced courses Both B.A. and B.S. degree students must take 1 advanced course in linguistic structure, either LING 235, 254, or 264; 1 course in natural language processing, either CPSC 477 or LING 227; and 1 course in machine learning, either S&DS 265, 365, or CPSC 481.

Electives Elective courses may be used to explore the application of the techniques of computational linguistics across a range of disciplines or to deepen expertise in these techniques. Courses that are pre-approved to satisfy the elective requirement are listed on the Computing and Linguistics major website, but other relevant courses may satisfy this requirement with DUS approval. B.A. degree students take 1 elective course; B.S. degree students take 2 electives.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major (other than as prerequisites).

SENIOR REQUIREMENT

All Computing and Linguistics majors enroll in the capstone seminar CSLI 490 in the fall of the senior year. This seminar includes discussion of student research, as well as presentations by researchers in the field from both inside and outside of Yale. B.A. degree students complete a senior project as part of CSLI 490, working either on an independent project supervised by a Yale faculty member with relevant expertise or as part of a group effort of capstone seminar participants. B.S. degree students enroll in the capstone seminar in the fall and continue work on their senior project in the spring. The senior project of B.S. degree students must involve independent research.

ADVISING

Students interested in the Computing and Linguistics major are encouraged to consult with the DUS. Further information about the major and answers to FAQs are available on the Computing and Linguistics website. The entire selection of courses by students in the major must be approved by the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Statistics*: one of S&DS 100, 101-106, 123, or 220 or comparable experience; *Programming*: CPSC 100 or 112 or comparable experience; *Linguistics*: one 100-level LING course

Number of courses *B.A. degree* – 11 term credits beyond prereqs and not incl senior req; *B.S. degree* – 14 term credits beyond prereqs and not including senior req

Specific courses required *For both degrees* – 2 computational core course CPSC 201 and CPSC 223; *for B.A. degree* – S&DS 238

Distribution of courses *Both degrees* – 2 math core courses, 1 adv linguistics structure course, 1 adv natural language processing course, 1 adv course in machine learning; *B.A. degree* – 2 linguistics core courses, 1 elective; *B.S. degree* – 2 statistics core courses, 3 linguistics core courses, 2 electives

Substitution permitted Elective courses in computational linguistics, machine-learning and applications of computational linguistics, as approved by DUS

Senior requirement *Both degrees* – Capstone seminar CSLI 490; *B.S. degree* – one additional semester of senior project

Computing and the Arts

Director of undergraduate studies: Julie Dorsey (julie.dorsey@yale.edu) [Spring 2023], AK Watson Hall, 51 Prospect St.

Computing and the Arts is an interdepartmental major designed for students who wish to integrate work in computing with work in one of five arts disciplines: architecture, art, history of art, music, or theater studies.

For students with a computing perspective, issues in these disciplines present interesting and substantive problems: how musicians use computers to compose; the limitations of current software tools used by artists; the types of analyses done by art historians; challenges in designing and using virtual sets in the theater; ways that virtual worlds might help to envision new forms of artistic expression; and lessons that can be learned from trying to create a robotic conductor or performer.

For students with an artistic perspective, computing methods offer a systematic approach to achieving their vision. A foundation in computer science allows artists to understand existing computing tools more comprehensively and to use them more effectively. Furthermore, it gives them insight into what fundamentally can and cannot be done with computers, so they can anticipate the future development of new tools for computing in their field.

PREREQUISITES

The prerequisite for all students in the major is either CPSC 100 or CPSC 112, which should be taken during the first year. There are two additional prerequisites for the Art track, ART 111 and 114. There are two additional prerequisites for the Theater and Performance Studies track, THST 110 and 111. There are no additional prerequisites for the Architecture track, the History of Art track, or the Music track. There is no required favorable review of studio work for admission to the major in any track, but a sophomore review advising session is required for the Art track.

REQUIREMENTS OF THE MAJOR

Twelve term courses are required beyond the prerequisites, not including the two-term senior project. Six of the courses must be in Computer Science, including CPSC 201, 202, and 223. Students are advised to complete CPSC 202 and 223 by the end of the sophomore year. MATH 244 may be substituted for CPSC 202. The six remaining courses are selected from one of the arts disciplines. Students choose a track in architecture, art, history of art, music, or theater and performance studies. All requirements for a single track must be satisfied, as specified below.

The Architecture track requires the following courses in addition to the Computer Science courses listed above: (1) ARCH 150 and 200; (2) two courses from ARCH 260, 312, 360, and 362; (3) two elective courses from either of the two concentrations: Design; or History, Theory, Criticism of Architecture, and Urbanism; (4) two courses from CPSC 376, 437, 446, 451, 475, 478, 479, or 484; and (5) one additional intermediate or advanced CPSC course (excluding CPSC 490).

The Art track requires the following courses in addition to the Computer Science courses listed above, as well as a sophomore review at the School of Art: (1) two 100-level courses beyond ART 111 and 114, such as ART 132 and/or 184 or 185; (2) two

courses in Art at the 200 or 300 level, such as ART 285 and/or 370; (3) ART 395; 4) one course in Art at the 400 level, such as ART 495; (5) two courses selected from CPSC 376, 437, 446, 451, 475, 478, 479, or 484; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490). Seniors following the art track will have access to a shared studio and many facilities in the School of Art.

The History of Art track requires the following courses in addition to the Computer Science courses listed above: (1) one introductory, 100-level, History of Art course; (2) two History of Art courses at the 200, 300, or 400 level (the courses must represent two different areas as defined in the History of Art program description); (3) one studio art course (students may need to take a prerequisite course in Art to prepare for the studio course); (4) HSAR 401; (5) one 400-level seminar in History of Art; (6) two courses selected from CPSC 376, 437, 451, 475, 478, or 479, one of which must be CPSC 478 or 479; (7) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Music track requires the following courses in addition to the Computer Science courses listed above: (1) two courses from *Group I* (Music Theory); (2) three additional courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); (4) CPSC 431; (5) CPSC 432; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Theater and Performance Studies track requires the following courses in addition to the prerequisites and Computer Science courses listed above: (1) two courses in the Artistic Practice domain; (2) two courses in the Histories domain; (3) two courses in the Performance Theory domain; (4) CPSC 431 or 432; (5) CPSC 478, 479, or 484; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

The senior project requires two terms: one term of CPSC 490, and one term of ARCH 491, ART 496, HSAR 499, one from MUSI 496–499, or THST 471 or 491, depending on the track chosen. The project must be approved by the DUS and be acceptable to both departments. Students must submit a written report, including an electronic abstract and webpage(s).

ADVISING AND APPROVAL OF PROGRAM

The entire program of each student majoring in Computing and the Arts must be approved by the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *All tracks*—CPSC 100 or CPSC 112; *Art track*—ART 111, 114, and sophomore review; *Theater and Performance Studies track*—THST 110, 111

Number of courses 12 term courses beyond prereqs (not incl senior project)

Specific courses required *All tracks*—CPSC 201, 202, 223; *Architecture track*—ARCH 150, 200; 2 courses from ARCH 260, 312, 360, 362; *Art track*—ART 395;

History of Art track – HSAR 401; *Music track* – CPSC 431, 432; *Theater and Performance Studies track* – CPSC 431 or 432; CPSC 478, 479, or 484

Distribution of courses *All tracks* – 3 addtl courses in Comp Sci as specified for each track, to incl 1 intermediate or advanced course (excluding CPSC 490); *Architecture track* – 2 courses from the concentrations, as specified; *Art track* – 2 courses in Art at 100 level (excluding prereqs), 2 courses at 200 or 300 level, and 1 at 400 level as specified; *History of Art track* – 1 intro, 100-level course; 2 courses in different areas of History of Art at 200, 300, or 400 level; 1 sem at 400-level in History of Art; 1 studio art course; *Music track* – 2 courses from *Group I* (Music Theory); 3 courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); *Theater and Performance Studies track* – 2 courses in each of three domains as specified

Substitution permitted MATH 244 for CPSC 202

Senior requirement *All tracks* – Two-term senior project including CPSC 490, approved by DUS; *Architecture track* – ARCH 491; *Art track* – ART 496; *History of Art track* – HSAR 499; *Music track* – one from MUSI 496–499; *Theater and Performance Studies track* – THST 471 or 491

DeVane Lecture Course

Information about the DeVane Lecture course is pending.

Directed Studies

Director of undergraduate studies: Katja Lindskog (katja.lindskog@yale.edu), HQ (320 York St.); Chair of Humanities: Francesco Casetti, HQ (320 York St.); directedstudies.yale.edu

Directed Studies (DS), a selective program for first-year students, is a seminar-based interdisciplinary introduction to a wide selection of influential texts that have shaped many Western traditions and cultures. Spanning works from the ancient Mediterranean to the present, Directed Studies is a coherent program of study that encourages students to put rich and complex texts into conversation with one another across time and across disciplinary boundaries. Students in Directed Studies learn to analyze challenging and urgent texts, to participate meaningfully in seminar discussions, and to write clear and persuasive analytic essays.

PREREQUISITES

Directed Studies has no prerequisites and is designed for students with or without any background in humanities or Western thought, ancient or modern. Students must enroll in the full slate of Directed Studies courses in both semesters of the program. (In order to enroll for the second term, students must have completed the first term's courses.)

UNIQUE TO THE PROGRAM

The Directed Studies program consists of three integrated full-year courses in Literature, Philosophy, and Historical and Political Thought. Approximately ten percent of the first-year class are accepted each year. Students entering the program must enroll in all three courses and are expected to enroll for both semesters. Students participating in DS become members of a close-knit and supportive intellectual cohort that endures well beyond the end of the first year.

Each of the three Directed Studies courses meets weekly for two seminars and one lecture. Seminars have a maximum of fifteen students and provide an opportunity to work closely with Yale faculty. The regular lectures and seminars are complemented by guest lectures that feature distinguished speakers from Yale and beyond. Our study of written texts is enhanced by special sessions at the Yale Art Gallery, the Yale Center for British Art, and the Beinecke Rare Book and Manuscript Library.

Directed Studies fulfills a number of Yale College distributional requirements, including the two required course credits in the humanities and arts (HU), the two required course credits in the social sciences (SO), and the two required course credits in writing (WR). Moreover, courses taken in Directed Studies can be counted toward satisfying requirements in a variety of majors. For example, both terms of DS Historical and Political Thought may be counted toward the History major, and one term may be counted toward the major in Political Science; both terms of DS Literature may be counted toward the Comparative Literature major. The program serves as a strong foundation for all majors in Yale College, including many STEM fields, and is an outstanding basis for careers in law, public policy, business, education, the arts, journalism, consulting, engineering, and medicine.

Earth and Planetary Sciences

Director of undergraduate studies: Celli Hull (pincelli.hull@yale.edu); earth.yale.edu

The Earth and Planetary Sciences (EPS) program, formerly Geology and Geophysics, prepares students for the application of scientific principles and methods to the understanding of the Earth system and other planets. Subjects range from the history of Earth and life to present-day environmental processes and climate change, the deep interiors of Earth and other planets, tectonic plates, oceans, atmospheres, climates, land surface, natural resources, and biota. The emphasis of the curriculum is on employing basic principles from the core sciences (physics, chemistry, and biology) to further an understanding of Earth's past and present, and addressing issues relating to its future. Students gain a broad background in the natural sciences, and select a specific track to focus their work on planetary or environmental phenomena of particular interest. The four B.S. tracks emphasize hands-on research experience in fieldwork, in laboratories, or in theoretical analyses and computer modeling. While some graduates continue on to research, consulting, or industrial careers in Earth, environmental, and planetary sciences, the major's broad scientific training prepares students for a wide variety of other paths, including medicine, law, public policy, and teaching. There is also a B.A. track, which is most suitable for students who wish to study Earth and Planetary Sciences as a second major, complementing other majors in, for example, mathematics, economics, physics, biology, or engineering, and who do so in preparation for a career in law, business, government, or environmental fields.

PREREQUISITES

With permission of the director of undergraduate studies (DUS), acceleration credits awarded at matriculation for high scores on national or international examinations (such as Advanced Placement subject tests) may be used to satisfy prerequisites, even if the student does not choose to accelerate. Higher-level courses may, with the permission of the DUS, be substituted for prerequisites and for specific required courses. For prerequisites specific for each track, see Requirements of the Major.

REQUIREMENTS OF THE MAJOR

The following course change requirements may, with DUS approval, be fulfilled by students who declared their major under previous requirements.

The following course change requirements for the Class of 2025 and subsequent classes apply for the B.S. degree and the B.A. degree as indicated.

B.S. degree program Majors in the B.S. program in Earth and Planetary Sciences choose from four tracks: Atmosphere, Ocean, and Climate; Environmental and Energy Geoscience; Paleontology and Geobiology; and Solid Earth Science. The tracks are suggested pathways to professional careers and major areas of research in earth and planetary sciences. Students may change tracks during their course of study with guidance from the DUS.

1. The Atmosphere, Ocean, and Climate track provides a comprehensive understanding of the atmosphere-ocean-climate system. Topics range from past climate changes, including the ice ages, to present-day atmospheric and ocean circulation, to weather phenomena, to global warming projections. The

prerequisites are CHEM 165 or CHEM 167; PHYS 180, 181 and PHYS 205L, 206L; ENAS 130 or equivalent; and mathematics through differential equations (MATH 120 or ENAS 151, and ENAS 194). The major requirements consist of at least eleven term courses, for at least eleven course credits, beyond the prerequisites, including either the senior essay or the senior thesis. To begin study of Earth processes, majors take an introductory course in EPS, selected from EPS 100; EPS 101; EPS 110 with 111L; or EPS 125 with 126L. EPS 100 and 101 do not require an accompanying lab. Five core courses, totaling five course credits, introduce students to Earth's climate system (EPS 140), meteorology (EPS 322), physical oceanography (EPS 335), fluid mechanics (MENG 361), and statistics or linear algebra (S&DS 230 or 238 or MATH 222). Other higher-level courses in EPS can be substituted with the permission of the DUS. Four electives are chosen from topics in the environment and in processes that govern the atmosphere, ocean, and land surface, physics, and statistics. A list of suggested electives is available from the office of the DUS or on the department website. At least one elective must be from EPS.

2. The Environmental and Energy Geoscience track provides a scientific understanding of the natural and anthropogenic processes that shape the Earth-atmosphere-biosphere system, including energy and material flows among its components. It emphasizes comparative studies of past and current Earth processes to inform models of humankind's role within the environment's future. The prerequisites are broad and flexible and include CHEM 165 or CHEM 167 and mathematics through multivariate calculus (MATH 120 or ENAS 151). Depending on their area of focus, students may choose a prerequisite in physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201), or they may choose cellular biology (BIOL 101 and 102, or MCDB 120) and evolutionary biology (BIOL 103 and 104, or E&EB 122, or EPS 125 and 126L). The major requirements consist of at least eleven term courses, for at least eleven course credits, beyond the prerequisites, including either the senior essay or the senior thesis. To begin study of the Earth system, majors take two introductory courses in EPS, selected from EPS 100; EPS 101; EPS 110 with 111L; EPS 125 with 126L; or EPS 140. Four core courses are chosen from Earth's surface processes (EPS 232), the microbiology of surface and near-surface environments (EPS 255), fossil fuels and energy transitions (EPS 274), renewable energies (EPS 275), geochemical principles (EPS 310), geology (EPS 210 or EPS 220 or EPS 312), meteorology (EPS 322), and satellite-based image analysis (EPS 362). Other higher-level courses in EPS can be substituted with the permission of the DUS. Four electives chosen from Earth & Planetary Sciences, Environmental Studies, Ecology and Evolutionary Biology, Engineering, or related fields provide a broad approach to scientific study of the environment. A list of suggested electives is available from the office of the DUS or on the department website. Electives may be chosen from the core courses, and at least two must be from EPS.
3. The Paleontology and Geobiology track focuses on the fossil record of life and evolution, geochemical imprints of life, and interactions between life and Earth. Topics range from morphology, function, relationships, and biogeography of the fossils themselves, through the contexts of fossil finds in terms of stratigraphy, sediment geochemistry, paleoecology, paleoclimate, and geomorphology, to analysis of the larger causes of paleontological, geobiological, and evolutionary patterns.

Integrative approaches are emphasized that link fossil evidence with the physical and chemical evolution of Earth. The prerequisites are college-level biology (BIOL 101–104, or MCDB 120 and E&EB 122), CHEM 165 or CHEM 167, and mathematics through multivariate calculus (MATH 120 or ENAS 151). The major requirements consist of at least twelve term courses, for at least eleven and a half course credits, beyond the prerequisites, including either the senior essay or the senior thesis. Students take one of EPS 100; EPS 101; or EPS 110 with 111L, to gain geological and environmental context, and they also take EPS 125 and 126L as an introduction to the fossil record and evolution. Four core courses are chosen from topics in four of the following areas: in sedimentary processes (EPS 232 or EPS 355), the study of evolution (E&EB 225), vertebrates and vertebrate paleontology (EPS 270 or EPS 325 or EPS 375), invertebrate paleontology (EPS 313), paleoecology (EPS 345), microbiology in past and present environments (EPS 255), Earth's carbon cycle and climate (EPS 310 or 402), and statistical data analysis as applied to the life sciences (S&DS 101 or equivalent). Other higher-level courses in EPS can be substituted with the permission of the DUS. Four electives selected from Earth and Planetary Sciences, Ecology and Evolutionary Biology, Molecular, Cellular, and Developmental Biology, and related fields offer students flexibility in pursuing their specific interests. A list of suggested electives is available from the office of the DUS or on the department website. At least four of the twelve term courses should be upper level (200 or above) paleontology courses and at least one elective must be from EPS.

4. The Solid Earth Science track emphasizes an integrated geological, geochemical, and geophysical approach to the study of processes operating within Earth and their manifestations on the surface. It includes the structure, dynamics, and kinetics of Earth's interior and their impacts on our environment both in the long term (e.g., the evolution of the land surface) and in the short term (e.g., the causes of natural disasters such as earthquakes, tsunamis, and volcanic eruptions). Students acquire a fundamental understanding of the solid Earth system, both as it exists today and as it has evolved over geologic time scales. The prerequisites are CHEM 165 or CHEM 167, physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201), and mathematics through multivariate calculus (MATH 120 or ENAS 151). The major requirements consist of at least eleven courses, for at least eleven course credits, beyond the prerequisites, including either the senior essay or the senior thesis. To begin study of the Earth system, majors take two introductory courses in EPS, selected from EPS 100; EPS 101; EPS 110 with 111L; EPS 125 with 126L; or EPS 140. The core of the track consists of four courses chosen from topics in mountain building and global tectonics (EPS 210 or EPS 212 or EPS 350), rocks and minerals (EPS 220), sedimentary rocks and processes (EPS 232), isotope geochemistry (EPS 310), and structural geology (EPS 312). Other higher-level courses in EPS can be substituted with the permission of the DUS. Students also select four electives in geology, geochemistry, geophysics, or related topics. A list of suggested electives is available from the office of the DUS or on the department website. Electives may be chosen from core courses, and at least two must be from EPS.

B.A. degree program The B.A. degree in Earth and Planetary Sciences requires fewer upper-level courses than the B.S. degree. It may be more appropriate for students who plan to fulfill the requirements of two majors, who study Earth and Planetary Sciences

in preparation for a career in law, business, government, or environmental fields, or who decide to pursue a science major only after the first year. The prerequisites include mathematics (MATH 115), biology (BIOL 101 and 102, or MCDB 120, or EPS 255), or physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201), and a lecture course in chemistry. The major requirements consist of at least nine term courses for at least nine credits, beyond the prerequisites. These include two courses in EPS numbered 100–140, with any accompanying laboratories; courses in natural resources (EPS 274 or EPS 275) and geochemical processes (EPS 220 or EPS 232 or EPS 261 or EPS 310); and five additional courses at the 200 level or higher in Earth and Planetary Sciences or related fields, approved by the DUS and including either the senior essay or the senior thesis. Course selections can be guided by any of the B.S. tracks described above.

Credit/D/Fail Courses taken Credit/D/Fail may not be applied to the prerequisites or to the requirements of the major.

SENIOR REQUIREMENT

Seniors in both degree programs must prepare either a senior essay based on one term of library, laboratory, or field research (EPS 492) or, with the consent of the faculty, a two-term senior thesis (EPS 490, EPS 491), which involves innovative field, laboratory, or theoretical research. Students electing to do a senior thesis must first select a topic and obtain the consent of a faculty member to act as an adviser. They must then petition the faculty through the DUS for approval of the thesis proposal. The petition should be submitted by the start of the senior year. If the two-term senior thesis is elected, EPS 491 may count as an elective toward the major. A copy of each senior thesis or senior essay is made available on the department website.

ADVISING

Qualified juniors and seniors are encouraged to enroll in graduate courses, with permission of the instructor, the DUS, and the director of graduate studies. Descriptions of graduate courses are available at the office of the DUS.

Practical experience In addition to prerequisites and required courses in Earth and Planetary Sciences, candidates for the B.A. and B.S. degrees are strongly encouraged to gain practical experience. This can be done in two ways: (1) by attending a summer field course at another academic institution, or (2) by participating in summer research opportunities offered by the Department of Earth and Planetary Sciences, by other academic institutions, or by certain government agencies and private industries. Consult the DUS or see the department website for further information.

Combined B.S./M.S. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Earth and Planetary Sciences.

Physics and Geosciences major The Department of Earth and Planetary Sciences also offers a combined major with the Department of Physics. For more information, see Physics and Geosciences.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *B.A.* – MATH 115; biology (BIOL 101 and 102, or MCDB 120, or EPS 255) or physics (PHYS 170, 171; or PHYS 180, 181; or PHYS 200, 201); and a lecture course in chem; *B.S.* – *All tracks* – CHEM 165 or CHEM 167; MATH 120 or ENAS 151; *Atmosphere, Ocean, and Climate track* – ENAS 130 or equivalent; ENAS 194; PHYS 180, 181, 205L, 206L; *Environmental and Energy Geoscience track* – physics (PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201) or biology (BIOL 101 and 102, or MCDB 120; and BIOL 103 and 104, or E&EB 122, or EPS 125 and EPS 126L); *Paleontology and Geobiology track* – BIOL 101–104, or MCDB 120 and E&EB 122; *Solid Earth Science track* – PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201

Number of courses *B.A.* – at least 9 courses beyond prereqs for letter grades (incl senior req); *B.S.* – *Atmosphere, Ocean, and Climate, Environmental and Energy Geoscience, and Solid Earth Science tracks* – at least 11 courses, for 11 credits, beyond prereqs for letter grades (incl senior req); *Paleontology and Geobiology track* – at least 12 courses, for 11.5 credits, beyond prereqs for letter grades (incl senior req)

Specific core courses *B.A.* – EPS 274 or EPS 275; 1 from EPS 220, 232, 261, or 310; *B.S.* – *Atmosphere, Ocean, and Climate track* – EPS 140, 322, 335, MENG 361, S&DS 230 or 238 or MATH 222; *Paleontology and Geobiology track* – EPS 125, 126L

Distribution of courses *B.A.* – 2 intro courses in EPS, with labs; 5 addtl courses at 200 level or higher in EPS or related fields inc sen req; *B.S. tracks* – 1 or 2 intro courses in EPS, with labs, as specified; 4 or 5 core courses, as specified; 4 electives, as specified

Substitution permitted *All programs* – with DUS permission, higher-level courses for prereqs or core courses

Senior requirement *All programs* – senior essay (EPS 492) or, with permission of faculty, two-term senior thesis (EPS 490, 491)

FACULTY OF THE DEPARTMENT OF EARTH AND PLANETARY SCIENCES

Professors Jay Ague, David Bercovici, Ruth Blake, Mark Brandon, Derek Briggs, David Evans, Alexey Fedorov, Debra Fischer, Jacques Gauthier, Shun-ichiro Karato, Jun Korenaga, Maureen Long (*Chair*), Jeffrey Park, Noah Planavsky, Peter Raymond, Danny Rye (*Emeritus*), James Saiers, Ronald Smith (*Emeritus*), Mary-Louise Timmermans, John Wettlaufer

Associate Professor Bhart-Anjun Bhullar, Matthew Eisaman, Pincelli Hull

Assistant Professors Juan Lora, Alan Rooney, Lidya Tarhan, Jordan Wostbrock

Lecturer Michael Oristaglio

East Asian Languages and Literatures

Director of undergraduate studies: Luke Bender, (luke.bender@yale.edu) Humanities Quadrangle (HQ, 320 York St.), Room 111, (203) 432-5823

The major in East Asian Languages and Literatures provides rigorous training in the study of East Asian languages, literatures, cultures, and thought from ancient times through the present, with a strong focus on the reading and analysis of texts, theater, film, and other forms of media. Students select either the Chinese or the Japanese track but are encouraged to take courses in both tracks to become familiar with East Asian literary culture more broadly. The major is excellent preparation for careers including business, law, academia, foreign service, translation, and journalism that demand advanced linguistic proficiency and analytical sophistication. East Asian Languages and Literatures graduates have gone on to careers in law, business, medicine, academia, film, translation, teaching, and diplomacy.

COURSES FOR NONMAJORS

All courses offered by the Department of East Asian Languages and Literatures are open to nonmajors.

COURSE NUMBERING

Language courses use the subject codes CHNS, JAPN, or KREN. Multiple-titled courses that include CHNS and JAPN subject codes and are numbered 200–299 are taught in English with some sections taught in Chinese or Japanese. Courses with the subject code EALL are content courses whose focus is critical and humanistic; those numbered 200–299 are introductory, and those numbered 300–399 are advanced. Courses numbered EALL 001–099 are First-Year Seminars with topics on East Asian literature, film, and humanities.

PREREQUISITE

Candidates for the major must complete CHNS 140 or JAPN 140 or the equivalent.

PLACEMENT PROCEDURES

Students who enroll in the department's language courses for the first time but who have studied Chinese, Japanese, or Korean elsewhere, and students who have skills in one of these languages because of family background, must take a placement examination before the beginning of the academic year. These exams can be accessed via the department website and must be completed before the end of July. Students of Japanese, Chinese, and Korean languages, returning from programs abroad, must take a placement examination, unless the coursework was completed at an institution preapproved by the Richard U. Light Fellowship program. For questions, consult with the director of undergraduate studies (DUS).

REQUIREMENTS OF THE MAJOR

The major consists of at least eleven term courses beyond the prerequisite. Students must take two terms of advanced modern Chinese (CHNS 150 and 151 or equivalents) or advanced Japanese (JAPN 150 and 151 or equivalents), as well as two terms of literary Chinese or Japanese (CHNS 170 and 171, or JAPN 170 and 171). Students also take a survey course in Chinese, Japanese, or East Asian history and culture, preferably early in their studies. Three courses are required in literature in translation,

taught in English, selected from EALL 200–399; one must be focused primarily on premodern content. These three may include courses on theater and film. In addition, two advanced courses with readings in literary or modern Chinese and/or Japanese are required.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may be counted toward the requirements of the major, with permission of the DUS.

SENIOR REQUIREMENT

Students prepare a one-term senior essay in EALL 491 or a yearlong senior essay in EALL 492 and 493. Those who elect a yearlong essay effectively commit to taking twelve term courses in the major, because the second term of the essay may not be substituted for any of the eleven required courses.

STUDY ABROAD

Students are encouraged to study abroad. Interested students should consult with the DUS and with the office of the Richard U. Light Fellowship to apply for support for programs in China, Japan, and Korea.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite CHNS 140 or JAPN 140 or equivalent

Number of courses 11 courses (incl one-term senior essay) or 12 courses (incl yearlong senior essay) beyond prerequisite

Specific courses required *Chinese track* – CHNS 150, 151 or equivalents, and 170, 171; *Japanese track* – JAPN 150, 151 or equivalents, and 170, 171

Distribution of courses 1 survey course in Chinese, Japanese, or East Asian hist and culture; 3 courses in lit in translation numbered EALL 200–399, one of them premodern; 2 adv courses with readings in Chinese and/or Japanese

Senior requirement One-term senior essay (EALL 491) or yearlong senior essay (EALL 492, 493)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of East Asian Languages and Literatures offers a Certificate of Advanced Language Study in Chinese, Korean, and Japanese. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. (Courses conducted in English, such as CHNS 170 and 171 and JAPN 170 and 171, do not count.) All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-

L5 course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcript.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated to include the Certificate of Advanced Language Study.

FACULTY OF THE DEPARTMENT OF EAST ASIAN LANGUAGES AND LITERATURES

Professors Aaron Gerow (*Chair*), Tina Lu, Jing Tsu

Associate Professor Michael Hunter

Assistant Professors Lucas Bender, Rosa van Hensbergen

Senior Lecturer Pauline Lin

Senior Lectors II Seungja Choi, Angela Lee-Smith, Ninghui Liang, Peisong Xu

Senior Lectors Hsiu-hsien Chan, Min Chen, Rongzhen Li, Fan Liu, Kumiko Nakamura, Hiroyo Nishimura, Jianhua Shen, Wei Su, Chuanmei Sun, Haiwen Wang, Yu-lin Wang Saussy, Mika Yamaguchi, Yongtao Zhang, William Zhou

Lector Hyun Sung Lim

East Asian Studies

Director of undergraduate studies: Valerie Hansen (valerie.hansen@yale.edu); ceas.yale.edu

In the East Asian Studies major, students focus on a country or an area within East Asia and concentrate their work in the humanities or the social sciences. The major offers a liberal education that serves as excellent preparation for graduate study or for business and professional careers in which an understanding of East Asia is essential.

The major in East Asian Studies is interdisciplinary, and students typically select classes from a wide variety of disciplines. The proposed course of study must be approved by the director of undergraduate studies (DUS).

PREREQUISITE

The prerequisite to the major is completion of study at the L2 level of an East Asian language taught at Yale or the equivalent.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisite, the major consists of thirteen course credits, which may include up to six taken in a preapproved program of study abroad. Six course credits must be taken in East Asian language courses, including a course at the L4 level and one year of advanced study (L5) with readings in the East Asian language.

Beyond the language requirement, the major includes seven course credits, six in the country or area of concentration and one outside it. Areas of concentration include: China, Korea, or Japan. Of the course credits in the area of concentration, one must be in the premodern period, at least two must be seminars, and one is the senior requirement. Both seminars must be completed before the semester in which students complete their senior essay. These courses are normally taken at Yale during the academic year, but with prior approval of the DUS the requirement may be fulfilled through successful course work undertaken elsewhere.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may be counted toward the requirements of the major, with permission of the DUS.

SENIOR REQUIREMENT

Prior to enrolling in the course in which the senior requirement will be met, students must have completed the two seminars related to their concentration requirement. During the senior year, all students must satisfy a senior requirement consisting of a major research project that uses Chinese-, Japanese-, or Korean-language materials, reflects an up-to-date understanding of the region, and demonstrates a strong command of written English. This requirement can be met in one of three ways.

(1) Students may take a seminar that relates to the country or area of concentration, culminating in a senior thesis. Students who are unable to write a senior essay in a seminar may complete (2) a one-term senior essay in EAST 480, or (3) a one-credit, two-term senior research project in EAST 491, 492 culminating in an essay. The adviser for the senior project should be a faculty member associated with the Council on East Asian Studies with a reading knowledge of the target language materials consulted for the essay.

ADVISING

Selection of courses Upon entering the major, students are expected to draw up an intellectually coherent sequence of courses in consultation with the DUS. They must consult with the DUS each term concerning their course schedules. They should identify as soon as possible a faculty adviser in their area of specialization. As a multidisciplinary program, East Asian Studies draws on the resources of other departments and programs in the University. Students are encouraged to examine the offerings of other departments in both the humanities and the social sciences, as well as Residential College Seminars, for additional relevant courses. The stated area of concentration of each student determines the relevance and acceptability of other courses. For a complete listing of courses approved for the major, see the Council on East Asian Studies website.

Courses in the graduate and professional schools Qualified students may elect pertinent courses in the Graduate School and in some of the professional schools with permission of the instructor, the EAST DUS, and the director of graduate studies of the relevant department or the dean or registrar of the professional school.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the fifth term of enrollment for specific requirements in East Asian Studies.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite L2 level of an East Asian lang taught at Yale or the equivalent

Number of courses 13 course credits beyond prereq (incl senior req); up to 6 may be in preapproved study abroad

Distribution of courses 6 course credits in East Asian lang courses, incl 1 L4 course and 1 year at L5 level with readings in the lang; 6 addtl course credits in country or area of concentration, incl 1 in premodern era and 2 seminars (the two seminars must be completed before starting senior req); 1 course credit on East Asia outside country or area of concentration

Senior requirement Senior sem culminating in senior thesis, or one-term senior essay in EAST 480, or one-credit, two-term senior research proj in EAST 491, 492 culminating in an essay

FACULTY ASSOCIATED WITH THE PROGRAM OF EAST ASIAN STUDIES

Professors Daniel Botsman (*History*), Fabian Drixler (*History*), Aaron Gerow (*East Asian Languages & Literatures; Film & Media Studies*), Valerie Hansen (*History*), Tina Lu (*East Asian Languages & Literatures*), Helen Siu (*Anthropology*), Chloe Starr (*Divinity School*), Jing Tsu (*East Asian Languages & Literatures; Comparative Literature*), Anne Underhill (*Anthropology*), Arne Westad (*Global Affairs; History*), Mimi Yiengpruksawan (*History of Art*)

Associate Professors Eric Greene (*Religious Studies*), Denise Ho (*History*), William Honeychurch (*Anthropology*), Michael Hunter (*East Asian Languages & Literatures*), Hwansoo Kim (*Religious Studies*), Yukiko Koga (*Anthropology*)

Assistant Professors Lucas Bender (*East Asian Languages & Literatures*), Jinyi Chu (*Slavic Languages & Literatures*), Maura Dykstra (*History*), Daniel Mattingly (*Political Science*), Quincy Ngan (*History of Art*), Hannah Shepherd (*History*), Rosa van Hensbergen (*East Asian Languages & Literatures*), Emma Zang (*Sociology*)

Senior Lecturer Pauline Lin (*East Asian Languages & Literatures*)

Lecturers Marnyi Gyatso, Carolyn Wargula

Senior Lectors II Seungja Choi, Angela Lee-Smith, Ninghui Liang, Peisong Xu

Senior Lectors Hsiu-hsien Chan, Min Chen, Rongzhen Li, Fan Liu, Kumiko Nakamura, Hiroyo Nishimura, Jianhua Shen, Mari Stever, Wei Su, Chuanmei Sun, Haiwen Wang, Yu-lin Wang Saussy, Mika Yamaguchi, Yongtao Zhang, William Zhou

Lector Hyun Sung Lim

See visual roadmap of the requirements.

Ecology and Evolutionary Biology

Director of undergraduate studies: Richard Prum (richard.prum@yale.edu); eeb.yale.edu

The Department of Ecology and Evolutionary Biology (E&EB) offers broad education in the biological sciences, covering subject matter that ranges from molecules, cells, and organs through organisms to communities and ecosystems, and the evolutionary processes that shape them. The department offers a B.S. and a B.A. degree. The B.S. program is designed for students planning to pursue graduate study in ecology and evolutionary biology, other biological disciplines, environmental science, or to attend medical, dental, or veterinary school. The B.A. program is intended for students who are interested in ecology, evolution, and organismal diversity as part of a liberal education but do not intend to pursue graduate work in the discipline, or for students who are interested in a second major. The two programs share the same prerequisites, introductory courses, and core requirements but differ in their electives and senior requirements.

COURSES FOR NONMAJORS

Several E&EB courses have no college-level prerequisites and are suitable for nonmajors. These include all 100-level offerings as well as 200-level courses that deal with particular organism groups such as plants, fish, mammals, birds, and insects or other invertebrates.

CONCENTRATIONS

Students majoring in E&EB select one of two concentrations. The concentration in *Biodiversity and the Environment* (formerly Track 1) emphasizes courses appropriate for careers in ecology, evolutionary biology, and environmental science. The concentration in *Organismal Biology* (formerly Track 2) is appropriate for premedical, pre-dental, and preveterinary students, and for students interested in research in physiology, functional morphology, and anatomy. The E&EB major offers opportunities for independent research in both laboratory and field.

PREREQUISITES

The prerequisites for the major are intended to provide core scientific literacy; they include courses in biology, chemistry, physics, and mathematics. Finishing these introductory courses early allows for a more flexible program in later years, but it is not necessary to complete them before declaring the major.

The introductory biology sequence BIOL 101, 102, 103, and 104 is required. Also required are a two-term lecture sequence in general chemistry, CHEM 161, 165 or CHEM 163, 167, with associated laboratories, CHEM 134L and 136L; one term of mathematics (MATH 115 or 116 or 120) or one term of statistics & data science (S&DS 100 or 230).

Students should take four additional courses, for a total of four credits, from among the following options: MATH 115 or 116, MATH 118 or 120, MATH 222 or 225, MATH 230 or 231, MATH 235, 241, 242, 244, 246, 247, 250, 255, S&DS 100-106, 220, 230, 238, 240, CPSC 100, 112, 123, 201, CHEM 174 or 220, CHEM 175 or 221, CHEM 222L, 223L,

PHYS 170 or 180, PHYS 171 or 181, EPS 110, 212, 220, 222, 232, 240, and 255. No more than two of these four additional courses may originate in the same department.

An online program, ONEXYS for Physics, will be offered in the summer by the Mathematics and Physics departments and by the Poorvu Center for Teaching and Learning, to review math skills needed in preparation for introductory physics courses.

Acceleration credit awarded in chemistry, mathematics, and physics, or completion of advanced courses in those departments, may be accepted in place of the corresponding introductory courses for the E&EB major. Students who have mathematics preparation equivalent to MATH 115 or higher are encouraged to take a statistics course (usually S&DS 101–106) and/or additional mathematics or statistics courses such as MATH 120, 121, MATH 222 or 225 or 226, and S&DS 220 or 230. Students are strongly urged to take general chemistry in the first or second year. Students who place out of general chemistry can take organic chemistry during their first year.

PLACEMENT PROCEDURES

Students can place out of the introductory biology sequence (BIOL 101, 102, 103, 104) by means of the biology placement examination administered jointly by the biological science departments, E&EB, MB&B, and MCDB, at the beginning of the first year.

Potential E&EB majors are expected to take the mathematics placement test. Those who place above the level of MATH 112 may proceed to introductory courses for the E&EB major; those who place into MATH 112 must take that course first.

For information about placement examinations, refer to the *Calendar for the Opening Days of College* and the Yale College Dean's Office website. The Chemistry department arranges placement in chemistry courses.

REQUIREMENTS OF THE MAJOR

B.S. degree program Beyond the prerequisites, the B.S. degree requires three lecture courses and one laboratory, for three and one-half course credits; two electives for two course credits, one of which must be a lecture or a seminar; and the senior requirement. The required courses in the *Biodiversity and the Environment* concentration are E&EB 220, 225, and a lecture course on organismal diversity usually chosen from E&EB 246–272 or E&EB 280, along with its associated laboratory, or E&EB 326 and 327L. Other lecture courses on organismal diversity, with laboratory, are permitted with approval of the DUS, including MCDB 290 and 291L. Required courses in the *Organismal Biology* concentration include E&EB 290; E&EB 295 or BENG 350; MCDB 300 or MB&B 300; and E&EB 291L. Most E&EB, MCDB, or MB&B courses numbered 200 or above qualify as electives, as do most research courses and laboratories in a biological sciences department or in the Yale School of Medicine. Courses from other science departments as well as Mathematics, Statistics and Data Science, and Computer Science may qualify with permission of the DUS. Residential College Seminars may not be counted toward the requirements of the major.

B.A. degree program Beyond the prerequisites, the B.A. degree requires the same courses as the B.S. degree, except for the two electives for a total of three and one-half course credits (not counting the senior requirement).

Limit on research courses While independent research courses may be taken multiple times for credit, there are restrictions on the number of such courses

that can be included in a student's curriculum. See Academic Regulations, section C, Course Credits and Course Loads. Interested sophomores and juniors can take E&EB 469 and E&EB 474. For information on how to become involved in research, see the E&EB Guide to Research and Undergraduate Research Opportunities. For information on fellowships and summer experiences, see the E&EB Guide to Fellowships and Summer Experiences.

Limit on courses taken in the professional schools Undergraduates may apply up to 4 courses taken in the professional schools for credit towards graduation. See Academic Regulations, section L, Special Academic Arrangements for more information.

Graduate courses of interest to undergraduates Graduate courses in the biological and biomedical sciences that may be of interest to undergraduates are listed in the Graduate School online bulletin, and many are posted on the Biological and Biomedical Sciences website. There is no limit on the number of courses students may take in the Graduate School of Arts and Sciences. Additional information is available from the DUS and the director of graduate studies. Undergraduates with an appropriate background may enroll with the permission of the director of graduate studies and the instructor.

Credit/D/Fail No course, including prerequisites, taken Credit/D/Fail may be counted toward the E&EB major.

SENIOR REQUIREMENT

B.S. degree program Students in the B.S. degree program fulfill the senior requirement by completing two terms of original research in E&EB 475 and 476, or in E&EB 495 and 496. Students interested in conducting research before their senior year may do so by taking E&EB 469 or E&EB 474, but they do not count toward the senior requirement.

B.A. degree program Students in the B.A. degree program fulfill the senior requirement either by completing one term of independent study in E&EB 470 or by writing a senior essay. The senior essay may be related to the subject matter of a course, but the senior essay is a separate departmental requirement in addition to any work done in a course and does not count toward the grade in any course. Students intending to write a senior essay must obtain an approval form from the office of the DUS and have it signed by the senior essay adviser before the end of the course selection period. Senior essays must be submitted to the DUS by the last day of classes.

ADVISING

First-year students considering a major in Ecology and Evolutionary Biology are invited to consult with the DUS. After the first year, students should choose an adviser from the department faculty who has interests comparable to their own and/or is a fellow of their residential college. For additional information, visit the E&EB website. Students in E&EB should consult one of the advisers assigned to their class (see below). The course schedules of all E&EB majors (including sophomores intending to major in E&EB) must be reviewed by a faculty member in E&EB; the signature of the DUS is not required, but is valid for any student. Students whose regular adviser is on leave can consult the DUS to arrange for an alternate.

Class of 2024: Walter Jetz and Richard Prum

Class of 2025: Casey Dunn and Carla Staver

Class of 2026: Erika Edwards and David Vasseur

Class of 2027: TBD

Peer Mentors provide a helpful student perspective to navigating the major and the department. You are encouraged to contact them.

YEEBUG is an undergraduate group of Yale's Ecology and Evolutionary Biology majors. The student members organize social events and panels, lead field trips, and represent the group at bazaars and academic fairs.

STUDY ABROAD

Participation in study abroad field programs is encouraged. The Organization for Tropical Studies (OTS) and the School for Field Studies (SFS) provide specific opportunities for study of tropical and conservation biology. Credit for such programs may apply toward the major; interested students should consult the DUS prior to going abroad.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites 13 courses for 11 credits, as specified

Number of courses *B.S.* – 5½ course credits beyond prereqs (not incl senior req); *B.A.* – 3½ course credits beyond prereqs (not incl senior req)

Specific courses required For both the *B.A.* and the *B.S.* degrees in *Biodiversity and the Environment* – E&EB 220, 225; in *Organismal Biology* – E&EB 290; E&EB 295 or BENG 350; MCDB 300 or MB&B 300; and E&EB 291L

Distribution of courses For both the *B.A.* and the *B.S.* degrees in *Biodiversity and the Environment* – 1 lecture course from E&EB 246–272 or E&EB 280 with associated lab, or E&EB 326 and 327L; Additionally for the *B.S.* – 2 electives as specified

Substitutions permitted MCDB lecture/lab courses on organismal diversity for E&EB lecture/lab

Senior requirement *B.S.* – two terms of E&EB 475 and 476, or E&EB 495 and 496; *B.A.* – E&EB 470 or senior essay

CONCENTRATIONS

Students majoring in E&EB select one of two concentrations.

The concentration in *Biodiversity and the Environment* (formerly Track 1) emphasizes courses appropriate for careers in ecology, evolutionary biology, and environmental science.

Required courses:

- E&EB 220 General Ecology
- E&EB 225 Evolutionary Biology
- a lecture course on organismal diversity usually chosen from E&EB 246–272 or E&EB 280, along with its associated laboratory, or E&EB 326 and 327L

The concentration in *Organismal Biology* (formerly Track 2) is appropriate for premedical, pre dental, and preveterinary students, and for students interested in research in physiology, functional morphology, and anatomy. The E&EB major offers opportunities for independent research in both laboratory and field.

Required courses:

E&EB 290 Comparative Developmental Anatomy of Vertebrates

E&EB 295 Life in Motion: Ecological and Evolutionary Physiology or BENG 350 Physiological Systems

MCDB 300 Biochemistry or MB&B 300 Principles of Biochemistry I

E&EB 291L Comparative Anatomy of Vertebrates Laboratory

FACULTY OF THE DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Professors †Richard Bribiescas, †Nicholas Christakis, Michael Donoghue, Casey Dunn, Erika Edwards, †Vivian Irish, Walter Jetz, Thomas Near (*Chair*), David Post, Jeffrey Powell, Richard Prum, †Eric Sargis, †Oswald Schmitz, †David Skelly, Stephen Stearns, †Jeffrey Townsend, Paul Turner, †J. Rimas Vaišnys, Günter Wagner

Associate Professors †Craig Brodersen, †Liza Comita, †Forrest Crawford, †James Noonan, Carla Starver, †Alison Sweeney, David Vasseur

Assistant Professors Martha Munoz, Alvaro Sanchez

Senior Lecturer Marta Martínez Wells

Lecturers Adalgisa Caccone, Linda Puth

†A joint appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

Economics

Director of undergraduate studies: Giovanni Maggi (giovanni.maggi@yale.edu), 115 Prospect St., Rosenkranz Hall, Room 334; 432-3574; economics undergraduate registrar (marleen.cullen@yale.edu); economics.yale.edu/undergraduate-program

Economics is much broader than the study of recessions and inflation or stocks and bonds. Economists study decision making and incentives such as how taxes create incentives for labor market and savings behavior. Many current public policy debates concern questions of economics, including causes and consequences of inequality and gender and racial wage gaps; how to address poverty; the impact of immigration and trade on the well-being of a country's citizens; the cause of the Great Recession; and how to predict future downturns.

At Yale, economics is regarded and taught as part of a liberal arts education, not as a preparation for any particular vocation. It can, however, provide a good background for several professions. The economics major strengthens critical reasoning skills and gives students experience manipulating and analyzing data, skills that will serve students well on the job market both inside and outside academia. Recent majors have pursued careers in business, government, and nonprofits. Others have entered law, medical, or business school, or have gone on to graduate work in economics, often after working in related fields for two or three years.

REQUIREMENTS OF THE MAJOR

There are no prerequisites for the major. Twelve credits are necessary to complete the major (11 Economics courses and 1 Mathematics course). The required distribution of courses is as follows:

Math requirement This can be fulfilled by any course numbered MATH 112 or above. MATH 110/111 can also be used to fulfill the math requirement, but MATH 110 and 111 together count as one course towards the economics major. ENAS 151 can also be used to fulfill the math requirement.

Introductory microeconomics ECON 108 or ECON 110 or ECON 115. You can skip or Cr/D/F introductory microeconomic courses based on pre-college testing or other circumstances, but in this case an extra elective course is required.

Introductory macroeconomics ECON 111 or ECON 116. You can skip or Cr/D/F introductory macro based on pre-college testing or other circumstances, but in this case an extra elective course is required.

Intermediate microeconomics ECON 121 or ECON 125

Intermediate macroeconomics ECON 122 or ECON 126

Econometrics ECON 117 or ECON 123 or ECON 136

Four electives Any ECON course numbered 159 or above can count as an elective. One elective can be replaced by a second econometrics course (typically ECON 123 or ECON 136). With DUS approval, a non-ECON course that is related to economics can be used to fulfill one of the electives.

Senior requirement Two courses numbered ECON 400–491 (at least one taken in senior year) are required.

Senior essay Writing a senior essay is optional (see more details below), but it necessary to earn distinction in the major.

Distinction in the major To earn Distinction, a student must write a senior thesis earning a grade of A- or better and receive A- or better in three-quarters of the courses that are counted toward the major (not including introductory microeconomics, introductory macroeconomics, the math requirement or courses taken outside of Yale). Economics courses taken beyond the requirements of the major are counted toward the Distinction calculation.

Credit/D/Fail Courses taken Cr/D/Fail may not be counted toward the requirements of the major.

Note Residential College Seminars and First Year Seminars (ECON 001/002) may not be counted toward the requirements of the major.

INTRODUCTORY COURSES

Many Yale students, regardless of what major they later choose, take introductory courses in economics. The department offers introductory courses in microeconomics, macroeconomics, and data analysis and econometrics. Microeconomics examines how individuals, firms, markets, and governments allocate scarce resources; macroeconomics studies growth, unemployment, inflation, and international economics; data analysis and econometrics teaches students statistical fundamentals and how to manipulate data in order to answer economic questions. Students must take introductory microeconomics before taking either introductory macroeconomics or data analysis and econometrics. Some students may wish to take introductory data analysis and econometrics before or concurrently with introductory macroeconomics, as data skills may be useful in the latter class.

ECON 115 is concerned with microeconomics and includes such topics as markets, prices, production, distribution, and the allocation of resources. ECON 116 covers such macroeconomic issues as unemployment, inflation, growth, and international economics. ECON 117 introduces students to basic aspects of working with data to answer economic questions, as well as to the fundamentals of statistical analysis. ECON 116 and 117 have microeconomics as a prerequisite. Despite the numbering, students may wish to take ECON 117 before or concurrently with ECON 116, as the data skills taught in ECON 117 may be helpful in ECON 116. ECON 115, 116, and 117 are lecture courses with accompanying discussion sections.

ECON 110 and 111 are smaller, slightly more discussion-oriented versions of introductory microeconomics and macroeconomics. Those with little or no experience in calculus may be better served by ECON 108, which covers microeconomics with greater discussion of quantitative methods and examples. ECON 108, 110, and 115 are similar in substance; ECON 111 and 116 are similar in substance as well.

The department recommends that students interested in majoring in Economics take at least two introductory economics courses in the first year. In order to make the

introductory courses available to all first-year students and to students majoring in other subjects, the introductory courses do not have a mathematics requirement.

In the summer before they enter, all first-year students receive, through the University's electronic bulletin board, a personalized recommendation for a first course in economics, based on application data and AP (or equivalent) exam scores. In general, students who receive a score of 5 on the Microeconomics or Macroeconomics AP exam *and* a score of 5 on the AP Calculus BC exam are recommended to place out of the corresponding introductory course and instead enroll in intermediate-level courses (ECON 121 or 125 for microeconomics, ECON 122 or 126 for macroeconomics).

Because of its emphasis on data analysis, the department recommends that even students with a background in statistics begin their econometrics and data analysis training with ECON 117.

MATHEMATICS COURSES

Students are advised to meet the mathematics requirement for the major during their first year. To fulfill the requirement, the department recommends that majors take MATH 118 or MATH 120, or a higher-level course. Also acceptable, but less preferred, are MATH 112, 115, 116, ENAS 151, or MATH 110 and 111. Students who intend to pursue a graduate degree in economics should take additional math courses, including linear algebra (MATH 222 or even better, a proof-based course such as MATH 225 or 226) and real analysis (MATH 255 or 256 or 300 or 301).

DATA ANALYSIS AND ECONOMETRICS COURSES

Students are strongly advised to take a two-term sequence of data analysis and econometrics courses, especially if they are interested in a research experience on or off campus. The statistical analysis of economic data has become central to the work of economists, and the ability to analyze large data sets is a skill that will serve students in the job market both inside and outside of academia. Most students should take ECON 117, followed by 123. Students with a stronger mathematics background, who prefer a more theoretical treatment of the material or who plan to pursue a graduate degree in economics, are encouraged to take ECON 135 or S&DS 241 and S&DS 242, followed by ECON 136. Prospective majors are urged to start their econometrics sequence by the fall of sophomore year.

Note S&DS 241 and S&DS 242 together count as one course towards the economics major. Further note that neither ECON 135 nor S&DS 241 and S&DS 242 fulfill the major's requirement of one econometrics course as they are courses in probability and statistics that are prerequisites for ECON 136, a course in econometrics. However, either ECON 117 or ECON 123 fulfills the econometrics requirement.

INTERMEDIATE MICROECONOMICS AND MACROECONOMICS COURSES

Two course options are available in both microeconomics and macroeconomics. The standard intermediate courses are ECON 121 and 122. Students with a stronger mathematics background who are interested in a more theoretical treatment of the material are encouraged to take ECON 125 and 126 instead. The intermediate courses need not be taken in sequence: in particular, ECON 125 is not required for 126; ECON 121 is not required for 122.

FIELD COURSES

The department offers a wide selection of upper-level courses in a variety of fields, such as theoretical and mathematical economics, market organization, human resources, finance, international trade, development economics, public finance, health economics, labor economics, inequality, environmental economics, and economic history. These courses are numbered ECON 159 and above. Some field courses have no prerequisites or only introductory microeconomics as a prerequisite. Others apply intermediate-level theory or econometrics to economic problems and institutions, and for this reason list one or more of the theory or econometrics courses as prerequisites.

SENIOR REQUIREMENT

Two courses numbered ECON 400–491 (at least one taken in senior year) are required.

Advanced lecture courses, generally numbered ECON 400–449, are limited-enrollment courses that cover relatively advanced material in more depth than regular field courses. While these courses vary in approach, they share features of other Economics courses: like field courses, they devote some time to traditional lecturing, and like seminars, they emphasize class interaction, the writing of papers, and the reading of journal articles. Advanced lecture courses may be applied toward the senior requirement.

Senior seminars are generally numbered ECON 450–489. Although there is diversity in approaches in the various seminars, all have in common an emphasis on class interaction, the writing of papers, and the reading of journal articles. Seminars represent an opportunity for students to apply and extend the economics they have learned through their earlier coursework.

Enrollment in seminars and advanced lecture courses is limited. Senior Economics majors who have not yet completed the senior requirement for the major are given priority for these courses and may enter preference selection before the registration period for these courses; see the department website for instructions. Other majors and non-majors may enroll in Economics seminars and advanced lecture courses as space permits, but they may not enter preference selection.

SENIOR ESSAY

Students have the option to write a Senior Essay, it is not required. There are four types of senior essays: (1) students may write a one-term essay in the fall of the senior year as an independent project on a topic of their own design under the close and regular supervision of a faculty adviser (ECON 491); (2) students may write a two-term essay starting in the fall and continued into the spring of the senior year as an independent project on a topic of their own design under the close and regular supervision of a faculty adviser (ECON 491 and ECON 492); (3) students may write a one-term essay in an advanced departmental course (numbered 400–489) taken during the fall term of the senior year; or (4) students may write a two-term essay beginning in an advanced departmental course (numbered 400–489) taken during the fall term, and completed in the spring of the senior year as an independent project under the close and regular supervision of a faculty adviser (ECON 492). Under this final option the instructor of the advanced departmental course taken in the fall term typically serves as the faculty adviser for the full academic year.

Students are required to complete a second semester of econometrics either before or during the first semester of senior year.

ADVISING

The Economics department has faculty representatives/advisers for each residential college. Students majoring in economics should consult with an economics adviser for their college during course enrollment. Questions concerning the major or programs of study may also be directed to the college representative. College representatives can be found on the department website.

Transfer credits

Students who take courses outside of Yale may petition the DUS to count some of them toward the requirements of the major. Students should consult with the DUS before taking such courses. Courses taken outside of Yale's Economics department may not be counted toward the major requirements in intermediate microeconomics, intermediate macroeconomics, econometrics, mathematics, or the senior requirement. See the department website section on transferring credits.

Graduate courses

Well-qualified students who have acquired the requisite background in undergraduate courses may be admitted to graduate courses and seminars. Descriptions of courses are available on the department website.

Students who are planning graduate work in economics should take additional mathematics courses beyond the one-term course required for the major. Many graduate programs in economics require courses in multivariate calculus, linear algebra, and real analysis. Please see the department website on Ph.D. program preparation. Students are urged to discuss their plans for graduate work with the DUS as early in their college careers as possible.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (including math req and senior req)

Distribution of courses Introductory micro and macro; intermediate micro (ECON 121 or 125); intermediate macro (ECON 122 or 126); econometrics (ECON 117 or 123 or 136); one math course (MATH 112 or above); four electives (one of which may be a second semester of econometrics)

Substitutions permitted 1 non-ECON course related to economics, with DUS approval, can replace an elective course. If you place out of an introductory course you must take an additional elective.

Senior requirement 2 courses numbered ECON 400–491 (at least one of which taken in senior year)

FACULTY OF THE DEPARTMENT OF ECONOMICS

Professors Joseph Altonji, Donald Andrews, Costas Arkolakis, Orazio Attanasio, Dirk Bergemann, Steven Berry, Xiaohong Chen, Ray Fair, John Geanakoplos, Pinelopi Goldberg, Timothy Guinnane, Philip Haile, Marina Halac, Johannes Horner, Gerald Jaynes, Yuichi Kitamura, Alvin Klevorick, Samuel Kortum, Naomi Lamoreaux,

Giovanni Maggi, Konstantinos Meghir, Giuseppe Moscarini, Kaivan Munshi, William Nordhaus, Gerard Padró i Miquel, Rohini Pande, Benjamin Polak, Mark Rosenzweig, Larry Samuelson, Anna Sanktjohanser, Katja Seim, Robert Shiller, Anthony Smith, Aleh Tsyvinski, Edward Vytlačil, Ebonya Washington, Fabrizio Zilibotti

Associate Professors Mitsuru Igami, Ilse Lindenlaub, Michael Peters, Philipp Strack

Assistant Professors Eduardo Dávila, Jose-Antonio Espin-Sanchez, Mira Frick, Charles Hodgson, John Eric Humphries, Zhen Huo, Ryota Iijima, Yusuke Narita, Cormac O’Dea, Nicholas Ryan, Anna Sanktjohanser

Senior Lecturers Marnix Amand, Michael Boozer, Evangelia Chalioti, William Hawkins, Tolga Koker, Guillermo Noguera, Soenje Reiche, María Saez Martí, Rebecca Toseland

Lecturers Jaime Arellano-Bover, Daniela Morar, Katerina Simons

Economics and Mathematics

Directors of undergraduate studies: Giovanni Maggi (giovanni.maggi@yale.edu) (Economics), 115 Prospect St., Rosenkranz Hall, Rm. 334; Andrew Neitzke (andrew.neitzke@yale.edu) (Mathematics), DL 425; associate director of undergraduate studies: Miki Havlickova (miki.havlickova@yale.edu) (Mathematics), DL 446; Math DUS (math.dus@yale.edu)

The Economics and Mathematics major is intended for students with a strong interest in both mathematics and economics and for students who may pursue a graduate degree in economics.

PREREQUISITES

The major has prerequisites in both mathematics and economics: MATH 120; ECON 110 or 115; and ECON 111 or 116. Upper level economics courses may be substituted for prerequisite economics courses. With Math DUS permission, students familiar with multivariable calculus may substitute an upper level mathematics course in the same area for MATH 120. Upper-level courses substituted for prerequisites do not count toward the total of twelve term courses (beyond the introductory level in economics and mathematics) required for the major.

REQUIREMENTS OF THE MAJOR

A total of twelve term courses is required beyond the introductory level in economics and in mathematics: seven term courses in economics and five term courses in mathematics numbered above 200 (except MATH 470). These courses must include:

1. One intermediate microeconomics course (ECON 125 is preferred, but ECON 121 is also acceptable) and one intermediate macroeconomics course (ECON 126 is preferred, but ECON 122 is also acceptable).
2. Two mathematical economics courses, ECON 351 and one of ECON 350, 417, or 433.
3. Two courses in econometrics, ECON 135 (or equivalent) and 136. ECON 135 can be replaced by S&DS 241 and S&DS 242, in which case they count as one economics course and not as mathematics courses. Neither S&DS 241 nor S&DS 242 can be counted toward the major in parallel to ECON 135.
4. **Students in the Class of 2025 and beyond** must complete linear algebra (MATH 225 or 226) and real analysis (MATH 255 or 256). MATH 222 is not recommended as a substitute for MATH 225 or 226, as it does not provide an introduction to proof writing, which is an essential skill for MATH 255 and 256. **Students in the Class of 2024** may use MATH 300, 301, or 305 to fulfill the real analysis requirement (in place of MATH 255 or MATH 256). They may also use MATH 231 to fulfill the linear algebra requirement (in place of MATH 225 or 226).

A course must be listed with a MATH number to count toward the mathematics requirements – substitutions from other departments are not permitted.

Distinction in the Major To be considered for Distinction in the Major, students must meet minimum grade standards, as specified under "Honors" in The Undergraduate Curriculum, and submit a senior essay in Economics that earns a grade of A or A-. One-term essays may be written in either an Economics department senior seminar or in ECON 491. Two-term senior essays may be written in either an Economics senior

seminar and ECON 492 or in ECON 491 and 492. (The paper must be written in a course or courses taken in the senior year.) For details see Economics. All courses beyond the introductory level in Mathematics and Economics are counted in the computation of grades for Distinction.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Students must take the senior seminar in mathematics, MATH 480 or 481. A senior essay in Economics is optional.

ADVISING

Students interested in the major should consult both DUSes, and verify with each that their proposed program meets the relevant guidelines.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120; ECON 110 or 115; ECON 111 or 116

Number of courses 12 term courses beyond prerequisites (incl senior req)

Distribution of courses 7 courses in econ and 5 in math

Specific courses required ECON 121 or 125; ECON 122 or 126; ECON 135; ECON 136; ECON 350, 417, or 433; ECON 351; MATH 225 or MATH 226; MATH 255 or MATH 256, as specified

Substitution permitted S&DS 241 and S&DS 242 for ECON 135, with permission of Economics DUS; substitutions for some Math courses for the Class of 2024 as described

Senior requirement Senior sem in math (MATH 480 or MATH 481); optional senior essay in economics

Education Studies Certificates

Executive director: Mira Debs (mira.debs@yale.edu), C-45 Humanities Quadrangle, 320 York Street, 432-4631; <https://educationstudies.yale.edu/>, Program FAQ

The Education Studies Program in Yale College provides a structure for students interested in the research, policy, and practice of education. By virtue of studying education at Yale, students engage in the interdisciplinary study of a primary institution impacting citizenship, governance, social reproduction, child development, and social inequality. Yale courses across the disciplines address these varying aspects of education through two area categories: (1) social contexts and policy and (2) individuals in society.

Students seeking to engage with Education Studies can pursue one of *two pathways* alongside their major: the Scholars Intensive Certificate, with a focus on learning with a cohort of Yale students and completing a senior year research or creative capstone project, or the uncapped Education Studies Certificate, which offers an individualized pathway to develop expertise through Education Studies coursework.

- To apply for the Education Studies Scholars Intensive Certificate, see the Education Studies website.
- To pursue the Education Studies Certificate, submit the Declaration of Candidacy form.

No more than two course credits fulfilling the requirements of either of the Education Studies certificates may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Any Yale College student interested in education studies may take the introductory survey course, EDST 110, Foundations in Education Studies. This lecture course explores the historical, social, philosophical, and theoretical underpinnings of the field and helps students to understand the critical role of education in society through research, policy, and practice.

SCHOLARS INTENSIVE CERTIFICATE IN EDUCATION STUDIES

The Education Studies Scholars Intensive Certificate in Yale College provides a structure for students interested in completing an intensive Education Studies senior project and learning alongside a cohort of peers from sophomore through senior year.

In the fall of the sophomore year, students who have successfully completed or are currently enrolled in EDST 110 may apply to become a Yale Education Studies Scholar alongside their major course of study. Selected students join a cohort of undergraduate peers who study education in several small seminars together. They are closely guided by faculty, peers, and alumni towards educational opportunities tailored to their individual interests. Education Studies Scholars also gain practical field experience through an appropriate academic-year educational opportunity or summer field experience.

REQUIREMENTS

To fulfill the requirements of the program, students must complete six courses including EDST 110, EDST 261; a field experience; two or three electives (depending on senior requirement), with at least one elective in each of two area categories (Social Contexts & Policy; Individuals in Society) and one or two senior capstone courses including EDST 400 alone or in combination with EDST 410 or 490. Two of the six courses may overlap with the student's major, and one elective course may be taken Credit/D/Fail. Graduate and professional school courses may count, with approval from the Education Studies director. For a listing of courses in the area categories, see the Education Studies website. You may also search for approved courses in Yale Course Search by searching for the following attributes: EDST: Social Context and EDST: Indv Society.

Transcripts will have notation indicating successful completion of the Scholars Intensive Certificate. Students should choose either the Education Studies Scholars Intensive Certificate or the Education Studies Certificate.

SUMMARY OF REQUIREMENTS

Prerequisite EDST 110

Number of courses 6 courses (incl prereq, EDST 261 and senior req)

Distribution of courses 2 or 3 electives (depending on senior req) with at least one elective in each area category

Other requirement Field experience as described on the EDST website

Senior requirement EDST 400 alone or in combination with EDST 410 or 490

CERTIFICATE IN EDUCATION STUDIES

Certificate director: Mira Debs (mira.debs@yale.edu), C-45 Humanities Quadrangle, 320 York Street, 432-4631; <https://educationstudies.yale.edu/>

This certificate, available to all interested Yale Students, provides the opportunity for students to pursue an interdisciplinary study of education to complement their major.

To earn the certificate, students must take the prerequisite EDST 110, one course in each of the two area categories, and two electives. No more than two course credits may overlap in the fulfillment of the requirements of the Education Studies certificate or of a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Graduate and professional school courses may count, with approval from the certificate director. With the exception of EDST 110, certificate students may take one of their EDST courses Credit/D/Fail.

For a listing of courses in the area categories, see the Education Studies Courses webpage. You may also search for approved courses in Yale Course Search by searching for the following attributes: EDST: Social Context and EDST: Indv Society.

Completion Procedure and Advising Once students are enrolled in the prerequisite EDST 110, they can and should submit a Declaration of Candidacy for a Certificate form. Students may do so as early as their first year. The declaration form must be

submitted no later than the due date for course schedules in the student's final term of enrollment. Transcripts will have a notation indicating successful completion of the certificate. Students should choose either the Scholars Intensive Certificate or the Education Studies Certificate.

SUMMARY OF REQUIREMENTS

Number of courses 5 term courses

Specific course required EDST 110

Distribution of courses one course credit each of two area categories: (1) social contexts and policy, and (2) individuals in society; 2 EDST electives

Electrical Engineering

Director of undergraduate studies: Fengnian Xia

(fengnian.xia@yale.edu); seas.yale.edu/departments/electrical-engineering

Electrical Engineering broadly encompasses disciplines such as microelectronics, photonics, computer engineering, signal processing, control systems, and communications. Three electrical engineering degree programs are offered, as well as a joint degree between the electrical engineering and computer science departments.

1. The **B.S. in Electrical Engineering**, accredited by the Engineering Accreditation Commission of ABET, Inc., is the flagship degree program and is the most challenging program in electrical engineering. This program is appropriate for highly motivated students who are interested in entering the engineering profession, and who wish for a flexible enough program to consider a variety of other career paths.

Upon graduation, Yale's B.S. Electrical Engineering (ABET) students are expected to achieve “student outcomes” as defined by ABET and the program. The Electrical Engineering major produces graduates who demonstrate: (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics; (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors; (3) an ability to communicate effectively with a range of audiences; (4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts; (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives; (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions; (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

2. The **B.S. in Engineering Sciences (Electrical)** provides similar technical exposure and equivalent rigor as the ABET program, while retaining the flexibility for students to take a broader range of courses than those mandated by the ABET curriculum. The B.S. in Engineering Sciences (Electrical) is suitable for careers in technology and is a popular choice for those choosing academic, industrial, or entrepreneurial career paths.

3. The **B.A. in Engineering Sciences (Electrical)** is suitable for careers outside of technology, including managerial, financial, and entrepreneurial career options.

4. The fourth program is a joint **B.S. in Electrical Engineering and Computer Science**, which offers a unique blend of electrical engineering and computer science courses that retains the rigor of both fields. This degree is a popular choice for those interested in information technology careers.

The program's educational objectives prepare students for four potential paths. An academic path qualifies graduates to enter a top-tier graduate program conducting research with broad applications or significant consequences, and eventually to teach at an academic or research institution. Graduates following an industrial path can enter

a technical path or a managerial path. An entrepreneurial path allows graduates to bring broad knowledge to a startup company, which can deliver a product or service that meets societal needs. Graduates who elect a nontraditional engineering path might complete a professional program in business, law, or medicine, for which their engineering knowledge will be valuable.

PREREQUISITES

All three engineering degree programs require MATH 112 and MATH 115 if applicable, ENAS 151 or MATH 120 or higher, ENAS 130 (CPSC 100 and 112 do not fulfill this requirement), and PHYS 180, 181 or higher (PHYS 170, 171 is acceptable for the B.A. degree). Acceleration credits awarded on entrance can be used to satisfy the MATH 112 and 115 requirements. Students whose preparation exceeds the level of ENAS 151 or MATH 120 are asked to take a higher-level mathematics course instead, such as MATH 222, MATH 225, MATH 226, MATH 255, or MATH 256. Similarly, students whose preparation at entrance exceeds the level of PHYS 180, 181 are asked to take higher-level physics courses instead, such as PHYS 200, 201. Students whose programming skills exceed the level of ENAS 130 are asked to take a more advanced programming course instead, such as CPSC 201; consult with the director of undergraduate studies (DUS).

Prerequisites taken Credit/D/Fail may not be counted toward the requirements of the major.

REQUIREMENTS OF THE MAJOR

Because the introductory courses are common to all three degree programs, students do not usually need to make a final choice before the junior year. Each student's program must be approved by the DUS.

B.S. degree program in Electrical Engineering The ABET-accredited B.S. in Electrical Engineering requires, beyond the prerequisites, four term courses in mathematics and science and thirteen term courses covering topics in engineering. These courses include:

1. Mathematics and basic science (four term courses): ENAS 194; MATH 222 or MATH 225 or MATH 226; APHY 322 or equivalent; S&DS 238, or S&DS 241, or equivalent.
2. Electrical engineering and related subjects (thirteen term courses): EENG 200, 201, 202, 203, 310, 320, 325, 348, and 481 (the ABET design project senior requirement); and four engineering electives, at least three of which should be at the 400 level. CPSC 365 or CPSC 366, MENG 390L, MENG 400, MENG 403, BENG 411, PHYS 430, APHY 458, and all 400-level computer science courses qualify as ABET electives. One of EENG 468 or EENG 469, Advanced Special Projects, also qualify as a 400-level elective.

The introductory engineering courses are designed such that they may be taken concurrently in the sophomore year; for example, in the fall term students may take EENG 200 and EENG 202, followed by EENG 201 and EENG 203 in the spring term. These courses may be taken in any order, with the exception of EENG 203, which requires EENG 200 as a prerequisite. In this case, it would be helpful to take ENAS 194 and/or ENAS 130 in the first year.

A sample ABET-accredited B.S. degree schedule for students who have taken the equivalent of one year of calculus in high school (and thus are not required to take MATH 112 and MATH 115) could include:

First Year: EENG 200, EENG 201, ENAS 151, PHYS 180, and PHYS 181
 Sophomore: EENG 202, EENG 203, ENAS 130, ENAS 194, and MATH 222
 Junior: EENG 310, EENG 320, EENG 325, EENG 348, S&DS 238, and 1 elective
 Senior: APHY 322, EENG 481, and 3 electives

A sample schedule for students who enter into the ABET-accredited B.S. major at the sophomore year could include:

First Year: ENAS 151, ENAS 130, ENAS 194, PHYS 180, and PHYS 181
 Sophomore: EENG 200, EENG 201, EENG 202, EENG 203, and MATH 222
 Junior: EENG 310, EENG 320, EENG 325, EENG 348, S&DS 238, and 1 elective
 Senior: APHY 322, EENG 481, and 3 electives

A sample schedule for students who enter into the ABET-accredited B.S. major in the first year (and are required to take MATH 112 and MATH 115) and only seek to fulfill basic distribution requirements with no engineering courses, could be:

First Year: MATH 112, MATH 115, PHYS 180, PHYS 181, and ENAS 130
 Sophomore: ENAS 151, EENG 200, EENG 201, EENG 202, EENG 203, and MATH 222
 Junior: ENAS 194, EENG 310, EENG 320, EENG 325, EENG 348, and S&DS 238
 Senior: APHY 322, EENG 481, and 4 electives

B.S. degree program in Engineering Sciences (Electrical) This program requires fewer technical courses and allows more freedom for work in technical areas outside the traditional electrical engineering disciplines (e.g., biomedical engineering, mechanical engineering, physics, etc.). It requires thirteen technical term courses beyond the prerequisites, specifically: MATH 222 or MATH 225 or MATH 226; ENAS 194; EENG 200, 201, 202, 203; EENG 471 and/or 472 (the senior requirement), or with permission of the instructor and the DUS, EENG 481; and five or six electives (depending on senior requirement) approved by the DUS, at least three of which must be at the 400 level. All electives listed for the ABET-accredited B.S. major qualify as electives for this degree.

For students who have taken the equivalent of one year of calculus in high school (and thus are not required to take MATH 112 and MATH 115), a sample schedule for the B.S. degree in Engineering Science (Electrical) could be:

First Year: EENG 200, EENG 201, ENAS 151, PHYS 180, and PHYS 181
 Sophomore: EENG 202, EENG 203, ENAS 130, ENAS 194, and MATH 222
 Junior: 3 electives
 Senior: EENG 471 and/or 472, and two or three electives depending on the senior project

The B.S. degree in Engineering Sciences (Electrical) requires fewer specific courses and 4 fewer courses overall than the ABET-accredited degree. Any of the courses required for the ABET-accredited major qualify as electives for this degree, as well as other courses with substantial electrical engineering context, subject to the approval of the DUS. For students entering the major during the sophomore year, or those who need

introductory calculus in their first year, sample schedules are similar to those described for the ABET-accredited degree program, with the differences in the B.S. Engineering Sciences (Electrical) degree applied.

The flexibility during the junior and senior years in the schedule above is often used to accommodate a second major, such as Economics, Applied Physics, Computer Science, Physics, or Mechanical Engineering.

B.A. degree program in Engineering Sciences (Electrical) This program is appropriate for those planning a career in fields such as business, law, or medicine where scientific and technical knowledge is likely to be useful. It requires eight technical term courses beyond the prerequisites, specifically: MATH 222, MATH 225, MATH 226 or ENAS 194; EENG 200, 201, 202, and 471 and/or 472 (the senior requirement); and two (or three) approved electives.

Credit/D/Fail Courses, including the prerequisites, taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

A research or design project carried out in the senior year is required in all three programs and must be approved by the DUS. Students take EENG 471 and/or 472, or EENG 481, present a written report, and make an oral presentation. Students taking both EENG 471 and 472, Senior Advanced Special Projects, may count one as an elective. Arrangements to undertake a project in fulfillment of the senior requirement must be made by the end of the course selection period in the term in which the student will enroll in the course; by this date, a prospectus approved by the intended faculty adviser must be submitted to the DUS.

ADVISING AND APPROVAL OF PROGRAMS

All Electrical Engineering and Engineering Sciences majors must have their programs approved by the DUS. Arrangements to take EENG 471, 472, or 481 are strongly suggested to be made during the term preceding enrollment in the course. Independent research courses (EENG 468 or EENG 469) are graded on a Pass/Fail basis, and one (1) can be counted toward the requirements of the major.

SUMMARY OF MAJOR REQUIREMENTS

ELECTRICAL ENGINEERING, B.S.

Prerequisites MATH 112, 115 if needed; ENAS 151 or MATH 120 or higher; ENAS 130 or higher; PHYS 180, 181 or higher

Number of courses 17 term courses beyond prereqs, incl senior req

Specific courses required ENAS 194; MATH 222 or MATH 225 or MATH 226; APHY 322; S&DS 238 or S&DS 241; EENG 200, 201, 202, 203, 310, 320, 325, 348

Distribution of courses 4 engineering electives, 3 at 400 level

Senior requirement One-term design project (EENG 481)

ENGINEERING SCIENCES (ELECTRICAL), B.S. AND B.A.

Prerequisites *Both degrees* – MATH 112, 115; ENAS 151 or MATH 120 or higher; ENAS 130 or higher; *B.S.* – PHYS 180, 181 or higher; *B.A.* – PHYS 170, 171 or higher

Number of courses *B.S.* – 13 term courses beyond prereqs, incl senior req; *B.A.* – 8 term courses beyond prereqs, incl senior req

Specific courses required *B.S.* – ENAS 194; MATH 222 or MATH 225 or MATH 226; EENG 200, 201, 202, 203; *B.A.* – 1 from ENAS 194, MATH 222, MATH 225, or MATH 226; EENG 200, 201, 202

Distribution of courses *B.S.* – 5 or 6 electives, depending on senior req, approved by DUS, 3 at 400 level; *B.A.* – 2 or 3 electives, depending on senior req, approved by DUS

Senior requirement *B.S.* – one or two-term research or design project (EENG 471 and/or 472 or, with permission of DUS, EENG 481); *B.A.* – one or two-term research or design project (EENG 471 and/or 472)

FACULTY OF THE DEPARTMENT OF ELECTRICAL ENGINEERING

Professors †Hui Cao, †James Duncan, Jung Han, Roman Kuc, Rajit Manohar, A. Stephen Morse, Kumpati Narendra, †Daniel Prober, Peter Schultheiss (*Emeritus*), †Lawrence Staib, †Hemant Tagare, Hongxing Tang, Leandros Tassiulas, J. Rimas Vaišnys, †Y. Richard Yang

Associate Professors Richard Lethin (*Adjunct, Lecturer*), Jakub Szefer, †Sekhar Tatikonda, Fengnian Xia

Assistant Professors Wenjun Hu, Amin Karbasi, Priyadarshini Panda

†A joint appointment with primary affiliation in another department.

Electrical Engineering and Computer Science

Directors of undergraduate studies: Rajit Manohar

(rajit.manohar@yale.edu) (Electrical Engineering), 523 BCT, 432-4306; Fengnian Xia (fengnian.xia@yale.edu) (Computer Science), AKW 208A, 432-6400

Electrical Engineering and Computer Science is an interdepartmental major designed for students who want to integrate work in these two fields. It covers discrete and continuous mathematics, algorithm analysis and design, digital and analog circuits, signals and systems, systems programming, and computer engineering. It provides coherence in its core program, but allows flexibility to pursue technical electives.

PREREQUISITES

The prerequisites for the major are MATH 112, 115 (these prerequisites may be waived for students who have taken the equivalent of one year of calculus in high school) and ENAS 151 or MATH 120 (or a higher-level course); CPSC 112 (for students without previous programming experience); and PHYS 180 and 181, or 200 and 201. PHYS 170, 171 are acceptable for students taking MATH 112. Acceleration credits may not be used to satisfy prerequisites, and because the B.S. programs in Electrical Engineering and in Engineering Sciences (Electrical) both limit the use of such credits, students who wish to retain the option of switching to these programs should consult the director of undergraduate studies (DUS) in Electrical Engineering when planning their course schedules.

REQUIREMENTS OF THE MAJOR

B.S. degree program The major requires fifteen term courses beyond the prerequisites: CPSC 201, 202, 223, 323, and one of 365 or 366 or 368; EENG 200, 201, 202, and 203; one from MATH 222, 225, 226, S&DS 238, or S&DS 241; four advanced electives, two in electrical engineering, two in computer science; and a senior project. MATH 244 may be substituted for CPSC 202. Electives must be 300- or 400-level courses in the departments of Electrical Engineering and Computer Science, or must be approved by the DUSes of both departments. Double-titled courses may be counted either way to fulfill this requirement. CPSC 280 and 490 may not be used as electives. Only one of CPSC 365, 366, and 368 may be taken for major credit. With permission of the DUSes of both departments, one of EENG 468 or 469 may be used as an electrical engineering elective.

For students who have taken the equivalent of one year of calculus in high school and have some programming experience, a typical program would be:

First-Year	Sophomore	Junior	Senior
EENG 200	CPSC 201	CPSC 202	Senior project
ENAS 151	EENG 202	CPSC 323	One elective
PHYS 180			
EENG 201	CPSC 223	CPSC 365 or 366 or 368	Two electives
PHYS 181	EENG 203	One elective	
	MATH 222		

Students with no programming experience should take CPSC 112 in the fall of their first year and either postpone EENG 200 until their sophomore year or take ENAS 151 or MATH 120 in the spring.

For students with one term of calculus and no programming experience, a typical program would be:

First-Year	Sophomore	Junior	Senior
CPSC 112	CPSC 201	CPSC 202	Two electives
MATH 115	EENG 200	CPSC 323	
PHYS 180	EENG 202	S&DS 241	
EENG 201	CPSC 223	CPSC 365 or 366 or 368	Senior project
MATH 120	EENG 203	One elective	One elective
PHYS 181			

For students with no calculus and no programming experience, a typical program would be:

First-Year	Sophomore	Junior	Senior
CPSC 112	CPSC 201	CPSC 202	Two electives
MATH 112	EENG 200	CPSC 323	
PHYS 170	ENAS 151	EENG 202	
EENG 201	CPSC 223	CPSC 365 or 366 or 368	Senior project
MATH 115	MATH 222	EENG 203	One elective
PHYS 171		One elective	

Students who start with MATH 112 may satisfy the physics prerequisite by taking PHYS 170 and 171 in their first year, as shown in the table above. However, because the B.S. programs in Electrical Engineering and in Engineering Sciences (Electrical) do not allow this substitution, students who wish to retain the option of switching to these programs should postpone physics until their sophomore year.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major, including prerequisites.

SENIOR REQUIREMENT

The senior project must be completed in CPSC 490 or EENG 471 and/or 472, depending on the adviser's department, and must be approved by the DUS in each department.

ADVISING AND APPROVAL OF PROGRAMS

The entire program of a student majoring in Electrical Engineering and Computer Science must be approved by the DUS in each department.

Accreditation Students interested in pursuing an ABET-accredited degree should consider the B.S. program in Electrical Engineering. See Electrical Engineering.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 112, 115, and ENAS 151 or MATH 120; CPSC 112 (students without previous programming experience); PHYS 180, 181, or 200, 201 with exceptions as indicated

Number of courses 15 term courses beyond prerequisites (including senior project)

Specific courses required CPSC 201, 202, 223, 323, and one of 365 or 366 or CPSC 368; EENG 200, 201, 202, and 203; one from MATH 222, 225, 226, S&DS 238 or S&DS 241

Distribution of courses 4 additional 300- or 400-level electives, 2 in electrical engineering, 2 in computer science

Substitution permitted MATH 244 for CPSC 202; advanced courses in other depts, with permission of DUS in each department

Senior requirement Independent project (CPSC 490 or EENG 471 and/or 472) approved by DUS in each department

Energy Studies Certificate

Certificate director: Michael Oristaglio (michael.oristaglio@yale.edu); earth.yale.edu/energy-studies

The Interdisciplinary Certificate in Energy Studies is designed to provide undergraduates with the knowledge and skills needed for advanced studies, leadership, and success in energy-related fields through a curriculum requiring coursework in three multidisciplinary tracks: Energy Science & Technology, Energy & Environment, Energy & Society. Activities such as field trips, funded on-campus projects, and internships will be available to students interested in hands-on experience and training in the modern world of energy technology, finance, regulation, and policy. More information about the special activities is listed on the Energy Studies website.

REQUIREMENTS

Students are required to complete two course credits in each of the three tracks of Energy Studies: (1) Energy Science & Technology, (2) Energy & Environment, (3) Energy & Society. ENRG 300, Multidisciplinary Topics in World Energy—which is required as one of the six course credits (exceptions can be granted by the Certificate Director) and counts toward the Energy & Society track—should be taken during the junior or senior year. ENRG 400, Senior Capstone Seminar, is not required, but is offered to students wishing to undertake a special energy-related project. ENRG 400 can count toward the six required course credits in any one of the three tracks, depending on the project's topic.

Approved courses are listed on the Energy Studies website and are searchable in Yale Course Search using the following course attributes.

- YC ENRG: Energy Science & Tech
- YC ENRG: Energy & Environment
- YC ENRG: Energy & Society

Students are invited to present syllabi to the Certificate Director for courses that they think might be suitable for fulfilling the requirements of the Certificate. It is the discretion of the Certificate Director to approve all courses that meet the curated curriculum of the Certificate.

Graduate and professional school courses may count toward the Certificate; language courses and non-Yale courses may not count toward the Certificate.

No more than two course credits fulfilling the requirements of the Energy Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Completion Procedure and Advising

Students should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the

form, and approval from the Certificate Director, is necessary to ensure that the earned Certificate appears on student transcripts.

Credit/D/Fail Only one course taken Credit/D/Fail or one independent study course graded Pass/Fail may be counted toward the program.

SUMMARY OF REQUIREMENTS

Prerequisites None

Number of courses 6 course credits

Required course ENRG 300

Distribution of courses 2 courses in each of the three tracks of Energy Studies listed above

Engineering

Dean of the School of Engineering & Applied Science: Mitchell Smooke, 105 17 HLH, 432-4200, engineering@yale.edu; seas.yale.edu

Engineering programs are offered in the departments of Biomedical Engineering, Chemical and Environmental Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering and Materials Science. These departments are administered by the Dean of the School of Engineering & Applied Science. The School also offers interdisciplinary courses bearing on engineering programs.

Curricula in Yale's undergraduate engineering and applied science programs range from technically intensive ones to those with lesser technical content that allows students considerable freedom to include courses of a nontechnical nature in their studies. Programs accredited by the Engineering Accreditation Commission of ABET, Inc., the accreditor for university programs in engineering, are the most intensive. ABET-accredited programs include B.S. degrees in Chemical Engineering, Electrical Engineering, and Mechanical Engineering.

Some students find that less intensive programs better meet their needs when considering two majors and/or careers in fields requiring less comprehensive technical knowledge. Such non-ABET programs include the B.S. in Biomedical Engineering, Computer Science, or Environmental Engineering and the B.S. in Engineering Sciences – Chemical, Electrical, or Mechanical – as well as the B.A. in Computer Science or in Engineering Sciences – Electrical, Environmental, or Mechanical – designed for students planning careers in business, law, medicine, journalism, or politics who want their liberal arts education to include study of the impact that science and technology have on society. A related major in Applied Mathematics is also available.

For engineering courses and descriptions of the major programs mentioned above, see Applied Mathematics, Biomedical Engineering, Chemical Engineering, Computer Science, Electrical Engineering, Engineering and Applied Science, Environmental Engineering, and Mechanical Engineering.

Engineering and Applied Science

Director of undergraduate studies: Vincent Wilczynski
(vincent.wilczynski@yale.edu), 107 BCT, 436-5971

Courses in Engineering and Applied Science fall into three categories: those intended primarily for students majoring in one of the several engineering and applied science disciplines; those designed for students majoring in subjects other than engineering, the applied sciences, and the natural sciences; and those designed to meet common interests of students majoring in engineering, the applied sciences, or the natural sciences.

In the first category, the departments of Applied Physics, Biomedical Engineering, Chemical and Environmental Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering and Materials Science offer courses intended primarily for majors in engineering and applied science disciplines. Courses in these departments may also be relevant for students with appropriate backgrounds who are majoring in Chemistry, Physics, Biology, Earth and Planetary Studies, and Mathematics. For information about majors in engineering and their related courses, see Applied Physics, Biomedical Engineering, Chemical Engineering, Computer Science, Electrical Engineering, Environmental Engineering, and Mechanical Engineering.

The School of Engineering and Applied Science is responsible for courses in the other two categories: technology for students majoring in subjects other than engineering, the applied sciences, and the natural sciences; and topics common to students majoring in engineering, the applied sciences, and the natural sciences. Courses for nonscience majors are intended for all students seeking a broad perspective on issues of scientific and technological import, and they introduce students who may be planning careers in law, business, or public service to concepts and methods of engineering and applied science. Courses for science and engineering majors include topics in applied mathematics and computation.

English Language and Literature

Director of undergraduate studies: Ruth Bernard Yeazell (ruth.yeazell@yale.edu), (ruth.yeazell@yale.edu) [Spring 2023]; Stefanie Markovits (stefanie.markovits@yale.edu), [Fall 2023, Spring 2024] 107 LC, 432-2224; associate director of undergraduate studies: Naomi Levine (naomi.levine@yale.edu), 107 LC, 432-2224; registrar: Erica Sayers (erica.sayers@yale.edu), 106 LC, 432-2226; assistant registrar: Jane Bordiere (jane.bordiere@yale.edu), 107 LC, 432-2224; english.yale.edu/welcome-english-major

The undergraduate program in English cultivates students' powers of argument and analysis while developing their understanding of important works of English, American, and world literatures in English. Courses offered by the department are designed to teach students foundational research and writing skills; to provide historical perspectives from which to read and analyze literary works; and to deepen students' insight into their own experience. For students interested in creative writing, the department offers an array of courses taught by renowned professional writers in all of the major genres, including fiction, poetry, play and film writing, nonfiction prose, and journalism.

The ability to write well remains a rare but prized skill in almost every domain of our world, and English majors go on to careers in many fields of endeavor. The analytic talents and the writing and speaking skills honed in the major can lead graduates to careers in fields such as advocacy, publishing, teaching, the arts, law, venture capital, medicine, and policy making.

COURSES FOR NONMAJORS AND MAJORS

All English courses are open to both majors and nonmajors, although advanced seminars are intended primarily for junior and senior majors.

Introductory courses English courses numbered from ENGL 114–130 are introductory and are open to all students in Yale College. Students planning to elect an introductory course in English should refer to the department website for information about preregistration. Once registered, students must attend the first and all subsequent course meetings for that particular section until the end of the Add/Drop period in order to retain a place. Students who miss a class meeting during this period without informing the instructor beforehand will have their places filled from the waiting list.

Advanced courses Advanced courses are open to upper-level students; the faculty recommends that students both within and outside the major prepare for such work with two terms of introductory English. Sophomores and juniors are encouraged to enroll in lecture courses in order to gain broad perspectives in preparation for more focused study. Seminars offer more intensive treatment of their topics, which are also often more specialized. While both lectures and seminars are frequently offered more than once, students should not expect the same courses to be offered from one year to the next.

Writing courses Besides courses that concentrate on the writing of expository prose (ENGL 114, 115, 120, and ENGL 421), the English department offers a number of creative writing courses. The introductory creative writing course, ENGL 123, is open to any student who has not taken an intermediate or advanced course in the writing

of fiction, poetry, or drama. Interested students must preregister for ENGL 123, but they need not submit a writing sample to gain admission. Many of the more advanced creative writing courses require an application in advance, with admission based on the instructor's judgment of the student's work. Application details and forms for these courses are available on the department website. Students with questions about this process should consult the department registrar. Students may in some cases arrange a tutorial in writing (ENGL 487), normally after having taken intermediate and advanced writing courses. All students interested in creative writing courses should also consult the current listing of Residential College Seminars.

FOUNDATIONAL COURSES

It is valuable for students majoring in English to have both a detailed understanding of major poets who have written in English and some acquaintance with the classics of American and world anglophone literature. All majors are accordingly required to take three of the four foundational courses from ENGL 125, 126, 127, 128. Prospective English majors are strongly encouraged to complete these requirements by the end of the sophomore year. Those who have not enrolled in the Directed Studies program should also consider taking both ENGL 129 and 130, foundational courses in the European literary tradition.

If, due to a late change of major or other circumstance, it is impossible to take three foundational courses, students may satisfy the requirements of the major by substituting for one foundational course (1) DRST 001 and 002, (2) ENGL 129 and 130, or (3) two advanced courses that deal substantially and intensively with similar material. All substitutions require permission from the director of undergraduate studies (DUS).

REQUIREMENTS OF THE MAJOR

At least fourteen courses are required for the major, including the senior requirement. Each student, in consultation with a departmental faculty adviser, bears the responsibility for designing a coherent program, which must include the following elements:

Each student must take: (1) three foundational courses chosen from ENGL 125, 126, 127, and 128; (2) at least one course in each of the following four historical periods, as indicated in the course listings: Medieval, Renaissance, 18th/19th century, 20th/21st century; (3) at least one seminar in both the junior and the senior years.

A student whose program meets these requirements may, with permission of the DUS, count as electives toward the major as many as two courses in other departments. One of these courses should normally be a literature course in English translation or in another language, and neither may be counted toward any requirement of the major. Certain Residential College Seminars, with permission of the DUS, may also be substituted for electives in the major.

A student may count up to five introductory courses and up to two creative writing courses toward the English major. ENGL 123 counts towards the introductory rather than towards the creative writing limit.

Library requirement Each English major must meet with Yale's Librarian for Literature in English or another research librarian within the first four weeks of the term during

which the student is fulfilling the first of the two-term senior requirement for the major. Workshops will be offered to fulfill this requirement.

Credit/D/Fail Courses taken Credit/D/Fail may be counted toward the requirements of the major, but they may affect whether Distinction in the Major is granted.

THE CREATIVE WRITING CONCENTRATION

The creative writing concentration is an intensive track for English majors who want more sustained work in creative writing. While there are many ways to pursue creative writing at Yale and within the English department, the creative writing concentration provides a structure for creative work and a community of support that many writers find rewarding. The creative writing concentration is not a separate degree or certificate; it is a part of the English major and builds on the wealth of its literary offerings. It aims to give English majors with demonstrated interest and achievement in writing an opportunity to plan the writing courses they take in a coordinated way and to do advanced work in tutorial. The creative writing concentration accepts students with demonstrated commitment to creative writing at the end of the junior year or, occasionally, in the first term of senior year.

Students who enter the creative writing concentration must fulfill the same requirements as all English majors, except that they count four creative writing courses toward the major, including ENGL 489, a tutorial in which students produce a single sustained piece of writing or a portfolio of shorter works. It is expected that senior applicants will have completed by the end of the fall term the following: (1) at least two creative writing courses numbered 451 or higher, with at least one of these courses in the genre in which they plan to complete ENGL 489 (i.e., poetry, fiction, nonfiction, or drama) and (2) one course in another genre, which may include a creative writing course numbered 400 or higher. Creative writing concentrators must complete at least eleven literature courses in addition to their creative writing courses, for a total of fifteen courses. All courses numbered 130 or below count as literature courses. Residential College Seminars are not acceptable for credit toward the creative writing concentration, except by permission of the DUS. The creative writing concentration senior project may be offered in partial fulfillment of the senior requirement. Concentrators should fulfill the senior library requirement in the term in which they do the literature component of their senior requirement.

Proposals for the creative writing concentration should be submitted to the English department office in 107 LC or online as directed on the department website, during the designated sign-up period in the term before enrollment is intended.

SENIOR REQUIREMENTS

Seniors must complete a two-course senior requirement consisting of one of the following combinations: (1) two senior seminars; (2) a senior seminar and a one-term senior essay; (3) a two-term senior essay, with permission of the DUS. For students in the creative writing concentration, the senior requirement is a senior seminar or one-term senior essay and ENGL 489, the senior project in the creative writing concentration. Each English major must make an appointment to meet with Yale's Librarian for Literature in English or another research librarian within the first four weeks of the term during which the student is fulfilling the first part of the two-term requirement for the major. A junior seminar in which the student, with the permission

of the DUS and of the instructor, fulfills the senior requirement may be counted as a senior seminar. At the start of term the student must arrange with the instructor to do any additional work necessary to make the course an appropriate capstone experience.

Senior seminar Senior seminars are designated “Senior Seminar” in the course listings, but they are open to interested juniors, as well. The final essays written for senior seminars are intended to provide an appropriate culmination to the student’s work in the major and in Yale College. Such essays should rest on significant independent work and should be of substantial length. In researching and writing the essay, the student should consult regularly with the seminar instructor, and may consult with other faculty members as well. Senior seminars may only be counted toward the requirement beginning in the sixth semester of a student’s course of study.

Senior essay The senior essay is an independent literary-critical project on a topic of the student’s own design, which is undertaken in regular consultation with a faculty adviser. Writing a senior essay provides a structure for English majors who want the opportunity to explore a research topic in a more sustained and intensive way, as well as a community of support that many majors find rewarding. It should ordinarily be written in an area on which the student has focused in previous studies. It may be written during one or two terms; single-term essays may be converted to two-term essays through application to the DUS. See the course listings for ENGL 490 and 491 for procedures. Students fulfilling the senior requirement through a two-term senior essay or through a senior essay and the senior creative writing concentration project must take a seminar during their senior year, but it need not be a senior seminar.

Prospectuses and applications for senior essays should be submitted to the office of the English department in 107 LC or online as directed on the department website, during the designated sign-up period in the term before enrollment is intended.

ADVISING

Students planning a program of study in English are strongly encouraged to consult a faculty adviser in the English department, the departmental representative in their residential college, or the DUS or Associate DUS for advice about their course choices.

In the fall of the junior year, each English major is formally assigned or chooses a faculty adviser from the English department, and in consultation with that adviser completes a statement outlining progress in the major. Course schedules for all majors should be discussed with and approved by their faculty advisers. The DUS and the Associate DUS can also discuss and approve schedules, if necessary.

For interdepartmental programs that include courses covering English literature, see Comparative Literature; Directed Studies; American Studies; African American Studies; Ethnicity, Race, and Migration; Theater and Performance Studies; and Women’s, Gender, and Sexuality Studies.

Graduate school Students considering graduate work in English should be aware that a reading knowledge of certain classical and modern European languages is often required for admission to graduate study, and that a course orienting them to critical theory can be especially helpful preparation.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and

M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in English Language and Literature.

SUMMARY OF MAJOR REQUIREMENTS

Number of courses *Standard major* – 14 courses (incl senior req); *Creative Writing concentration* – 15 courses (incl senior req)

Distribution of courses 3 courses chosen from ENGL 125, 126, 127, and 128; 1 course in each of four historical periods as specified (intro courses do not fulfill this requirement); 1 junior seminar; *Creative Writing concentration* – same, except 4 creative writing courses including at least 2 numbered 451 or higher, one in same genre as ENGL 489; and 1 in another genre, numbered 131 or higher; at least 11 literature courses

Substitutions permitted DRST 001 and 002 or ENGL 129 and 130 or two upper-level courses with overlapping material may substitute for one foundational course; up to 2 relevant upper-level courses in other departments may substitute for electives in the major; Residential College Seminars may substitute for electives in the major; all substitutions require DUS permission

Senior requirement *Standard major* – 2 senior sems, or 1 senior sem and 1 senior essay (ENGL 490), or a two-term senior essay (ENGL 490, 491); *Creative Writing concentration* – senior sem or senior essay, and ENGL 489

All seniors must meet with a research librarian in the first term of their senior requirement.

FACULTY OF THE DEPARTMENT OF ENGLISH

Professors Jessica Brantley, Leslie Brisman, David Bromwich, Ardis Butterfield, Jill Campbell, Joe Cleary, Jacqueline Goldsby, Langdon Hammer, Margaret Homans, Cajetan Iheka, Jonathan Kramnick, Stefanie Markovits, Feisal Mohamed, Stephanie Newell, Catherine Nicholson, John Durham Peters, Caryl Phillips, Marc Robinson, Caleb Smith, Katie Trumpener, Shane Vogel, Michael Warner, Ruth Yeazell

Associate Professors Marta Figlerowicz, Ben Glaser, Emily Thornbury, R. John Williams, Sunny Xiang

Assistant Professors Anastasia Eccles, Marcel Elias, Alanna Hickey, Jonathan Howard, Elleza Kelley, Naomi Levine, Ernest Mitchell, Priyasha Mukhopadhyay, Joseph North, Jill Richards

Professors in the Practice Michael Cunningham, Anne Fadiman, Louise Glück, Donald Margulies

Senior Lecturers James Berger, Richard Deming, Meghan O'Rourke, Cynthia Zarin

Lecturers Felisa Baynes-Ross, Steven Brill, Alan Burdick, Lincoln Caplan, Maximillian Chaoulideer, Danielle Chapman, Alison Coleman, Susan Dominus, Andrew Ehrgood, Craig Eklund, Greg Ellermann, Randi Epstein, Amity Gaige, Lindsay Gellman, Rona Johnston Gordon, Derek Greene, Jacob Halpern, Rosemary Jones, Heather Klemann, Verlyn Klinkenborg, Timothy Kreiner, Sarah Mahurin, Pamela Newton, Mark Oppenheimer, Barbara Riley, Timothy Robinson, Karin Roffman, Madeleine Saraceni,

Pamela Schirmeister, Adam Sexton, Kim Shirkhani, Emily Skillings, R. Clifton Spargo, Margaret Spillane, Sarah Stillman, James Surowiecki, Rasheed Tazudeen, Aaron Tracy, Ryan Wepler, Christian Wiman

See visual roadmap of the requirements.

Environment

At Yale, the environment is studied from a variety of perspectives. Majors are offered in Architecture, Chemical Engineering, Ecology and Evolutionary Biology, Environmental Engineering, Environmental Studies, Earth and Planetary Sciences and Urban Studies. The program in Environmental Studies offers courses in environmental science, policy, and management. Many other departments and programs offer courses pertinent to the study of environment, including American Studies, Anthropology, Chemistry, Economics, English, Global Affairs, History, History of Art, Political Science, Sociology, and Study of the City. Some professional schools and programs offer relevant courses that may admit undergraduates, including the School of Public Health, the School of the Environment, the Law School, and the School of Management.

Environmental Engineering

Director of undergraduate studies: John Fortner (john.fortner@yale.edu); seas.yale.edu/departments/chemical-and-environmental-engineering

Environmental engineering encompasses the scientific assessment and development of engineering solutions to environmental problems affecting land, water, and air (the biosphere). The field addresses broad environmental issues, including the safety of drinking water, groundwater protection and remediation, wastewater treatment, indoor and outdoor air pollution, climate change, solid and hazardous waste disposal, cleanup of contaminated sites, the prevention of pollution through product and process design, and strategies for sustainable water and energy use and production.

Environmental engineers must balance competing technical, social, and legal issues concerning the use of environmental resources. Because of the complexity of these challenges, environmental engineers need a broad understanding not only of engineering disciplines but also of chemistry, biology, geology, and economics. Accordingly, the program allows students in the major to select an emphasis on environmental engineering technology, sustainability, global health, economics, or energy and climate change. The program prepares students for leadership positions in industry and government agencies or for further studies in engineering, science, business, law, and medicine.

Two degree programs are offered: the B.S. in Environmental Engineering, and the B.A. in Engineering Sciences (Environmental). The B.S. degree program in Environmental Engineering is designed for students who desire a strong background in environmental engineering leading to a career in the field. The B.A. degree program in Engineering Sciences (Environmental) is intended for students whose careers will involve, but not be dominated by, the skills of environmental engineering. The B.A. program is appropriate for those contemplating a career in which scientific and technological problems can play an important role, as is often the case in law, business, medicine, or public service.

Students in the Class of 2024 and 2025 With approval from the director of undergraduate studies (DUS), the following changes to the prerequisites and the major requirements of the B.S. degree program may be fulfilled by students who declared their major under previous requirements.

Students in the Class of 2026 and subsequent classes follow the prerequisite and the major requirements for the B.S. degree program as indicated below.

PREREQUISITES

B.A. degree program in Engineering Sciences (Environmental) The B.A. degree program requires MATH 112 and 115; a two-term lecture sequence in chemistry; and PHYS 170, 171.

B.S. degree program in Environmental Engineering The B.S. degree program has the following prerequisites in mathematics and basic sciences: MATH 112, 115; MATH 120 or ENAS 151; ENAS 194; ENAS 130 or S&DS 230; a two-term lecture sequence in chemistry, with corresponding labs; PHYS 180, 181; BIOL 101 and 102 or BIOL 103 and 104.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program requires nine term course credits beyond the prerequisites, including the senior requirement. Students take ENVE 120, 360, and either ENVE 373 or 377. Five electives must be chosen in consultation with the director of undergraduate studies (DUS). Elective courses may build toward an optional concentrated area of emphasis, including (a) Climate and Energy, (b) Environmental Science and Technology, (c) Sustainability and Policy, and (d) Self-designed.

B.S. degree program The B.S. degree program requires at least thirteen term course credits beyond the prerequisites, including the senior requirement. Students take CENG 300 or MENG 211; ENVE 120; ENVE 360; ENVE 373; ENVE 314 or 448; EVST 444 or ENVE 438; ENVE 441; and ENAS 642. At least four electives must be chosen in consultation with the DUS; of these, three must be technical electives. Elective courses may build toward an optional concentrated area of emphasis, including (a) Climate and Energy, (b) Environmental Science and Technology, (c) Sustainability and Policy, and (d) Self-designed.

Credit/D/Fail No course taken Credit/D/Fail may count toward the major, including prerequisites.

SENIOR REQUIREMENT

B.A. degree program Students in the B.A. program must pass ENVE 416 or ENVE 490 in their senior year.

B.S. degree program Students in the B.S. program must pass ENVE 416 or ENVE 490 in their senior year.

SUMMARY OF MAJOR REQUIREMENTS

ENGINEERING SCIENCES (ENVIRONMENTAL), B.A.

Prerequisites MATH 112, 115; two-term lecture sequence in chemistry; PHYS 170, 171

Number of courses 9 term courses beyond prereqs (incl senior req)

Specific courses required ENVE 120; ENVE 360; and ENVE 373 or 377

Distribution of courses 5 electives approved by DUS

Senior requirement ENVE 416 or ENVE 490

ENVIRONMENTAL ENGINEERING, B.S.

Prerequisites MATH 112, 115; MATH 120 or ENAS 151; ENAS 194; ENAS 130 or S&DS 230; two-term lecture sequence in chemistry, with labs; PHYS 180, 181; BIOL 101 and 102 or BIOL 103 and 104

Number of courses 13 term courses beyond prereqs (incl senior req)

Specific courses required CENG 300 or MENG 211; ENVE 120; ENVE 360; ENVE 373; ENVE 314 or 448; EVST 444 or ENVE 438; ENVE 441; ENAS 642

Distribution of courses 4 electives approved by DUS, three of which must be technical electives

Senior requirement ENVE 416 or ENVE 490

FACULTY ASSOCIATED WITH THE PROGRAM IN ENVIRONMENTAL
ENGINEERING

Professors Paul Anastas (*Forestry & Environmental Studies*), Michelle Bell (*Forestry & Environmental Studies*), Ruth Blake (*Geology & Geophysics*), Menachem Elimelech (*Chemical & Environmental Engineering*), Edgar Hertwich (*Forestry & Environmental Studies*), Edward Kaplan (*School of Management*), Jaehong Kim (*Chemical & Environmental Engineering*), Jordan Peccia (*Chemical & Environmental Engineering*), Lisa Pfefferle (*Chemical & Environmental Engineering*), Julie Zimmerman (*Chemical & Environmental Engineering*)

Associate Professors John Fortner (*Chemical & Environmental Engineering*), Drew Gentner (*Chemical & Environmental Engineering*)

Environmental Studies

Directors of undergraduate studies: Michael Fotos (michael.fotos@yale.edu) for B.A. students, Kealoha Freidenburg (kealoha.freidenburg@yale.edu) for B.S. students; www.yale.edu/evst

Environmental Studies offers the opportunity to examine human relations with their environments from diverse perspectives. The major encourages interdisciplinary study in (1) social sciences, including anthropology, political science, law, economics, and ethics; (2) humanities, to include history, literature, religion, and the arts; and (3) natural sciences, such as biology, ecology, human health, geology, and chemistry. Students work with faculty advisers and the directors of undergraduate studies (DUS) to concentrate on some of the most pressing environmental and sustainability problems of our time: energy and climate change, food and agriculture, urbanism, biodiversity and conservation, human health, sustainable natural resource management, justice, markets, and governance.

Students may pursue either a B.A. or a B.S. degree within Environmental Studies. The B.A. program is intended for students who wish to concentrate in the social sciences and humanities. The B.S. program encourages students to focus in the natural sciences, especially fields such as environmental health and medicine, ecology, and energy and climate change. Both degree programs culminate in a senior essay project that is commonly preceded by independent summer research.

Students must declare a major in Environmental Studies before the end of the second term of junior year.

PREREQUISITES

The B.A. degree program has no prerequisites.

The B.S. degree program has prerequisites in mathematics, chemistry, life sciences, and a natural science lab. The prerequisites include a term course in mathematics, physics, or statistics selected from MATH 112 or higher (excluding MATH 190), or PHYS 170 or higher, or S&DS 101 or higher; the two-term lecture sequence in chemistry or, for students qualifying for advanced placement in chemistry, one term of CHEM 167 or higher; the two-credit BIOL sequence BIOL 101, 102, 103 and 104, or EPS 125; and a natural science lab such as those listed on the environmental studies website or by searching Yale Course Search (YC EVST: B.S. NatSci Lab).

Students in the classes of 2024 or 2025 who have taken approved field science courses in Spring 2023 or earlier may substitute one such course for the natural science lab prerequisite.

Students in the B.S. program are advised to take chemistry and biology during the first year before enrolling in the EVST core courses in the natural sciences. It is recommended but not required that students complete the prerequisites by the end of their sophomore year.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree requires at least fourteen course credits, consisting of the core requirements, the concentration, and the senior requirement.

B.S. degree program In addition to the prerequisites, the B.S. degree requires at least twelve course credits, consisting of the core requirements, the concentration, and the two-term senior requirement.

B.A. core courses One course in statistics or mathematics selected from S&DS 101 or higher, MATH 110 and 111 or MATH 112 or higher; two core courses in the social sciences or humanities and three core courses in the natural sciences. Students may select core courses from among the list of approved core courses posted on the environmental studies website or by searching Yale Course Search (YC EVST: Core BA Natural Scie and YC EVST: Core Human/Social Sci). Completing one course in each core area before the end of the sophomore year is recommended.

B.S. core courses Two core courses in the humanities or social sciences and two natural science core courses from among the list of approved core courses posted on the environmental studies website or by searching Yale Course Search (YC EVST: Core BS Natural Scie and YC EVST: Core Human/Social Sci). Completing one course in each area before the end of the sophomore year is recommended.

Areas of concentration Students plan their concentration in consultation with the DUS and the student's adviser. A concentration is defined as six courses that provide analytical depth in a particular environmental problem or issue of interest, as well as disciplinary expertise. For the B.A. degree, one of these six courses must be an advanced seminar that exposes students to primary literature, extensive writing requirements, and experience with research methods. For the B.S. degree, two of the six courses must provide interdisciplinary context to the concentration and three of the six courses must have the science (SC) distributional designation. Of the three SC-designated concentration courses in the B.S. degree program, at least two must have departmental numerical ratings of 125 or higher. Concentrations include biodiversity and conservation, climate change and energy, environmental humanities, environmental justice, environmental policy, food and agriculture, human health and environment, sustainability and natural resources, and urban environments. Students also have the opportunity to design a unique concentration within the major, in consultation with the DUS.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the major, including prerequisites.

SENIOR REQUIREMENT

B.A. degree program For the B.A. degree, students most often complete one term of EVST 496, a colloquium in which they write their senior essay. Students writing the one-term essay must also complete an additional advanced seminar in the environment. The additional advanced seminar is in addition to the six-course concentration requirement. Two-term senior research projects require the permission of the DUS. Students wishing to complete a two-term senior essay must apply for approval before the end of the second term of their junior year. Application requirements are posted on the EVST website.

B.S. degree program For the B.S. degree, students complete two terms of EVST 496.

ADVISING

Summer Environmental Fellowship During the spring term, EVST majors may apply for the Summer Environmental Fellowship to gain experience in the field through research or internships in an area pertinent to their academic development or their senior essay project. Sophomores and juniors may arrange internships with nonprofit organizations, government agencies, or corporations. Rising seniors typically focus on research for their senior essay. Although the summer program is optional, many students take advantage of this opportunity with some financial support from the program.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *B.A.* – no prerequisites; *B.S.* – one statistics, math, or physics course from MATH 112 or higher (excluding MATH 190), or PHYS 170 or higher, or S&DS 101 or higher; two-term lecture sequence in chemistry, or CHEM 167 or higher; BIOL 101, 102, 103 and 104, or EPS 125; and one natural science lab

Number of courses *B.A.* – at least 14 course credits, including the senior req; *B.S.* – at least 12 course credits, beyond prereqs and incl the senior req

Specific courses required *B.A.* – 6 core courses, as specified; *B.S.* – 2 core courses in humanities and social sciences and 2 core courses in natural sciences, as specified

Distribution of courses *B.A.* – 6 courses in area of concentration, including 1 adv seminar as specified; *B.S.* – 6 courses in area of concentration, 3 of which must have SC designation with 2 of the 3 numerically rated at 125 or higher, and 2 must provide interdisciplinary context as specified

Senior requirement *B.A.* – one-term senior essay, EVST 496 and an adv seminar in the environment or, with petition to the DUS before the end of the junior year, a two-term research project; *B.S.* – two-term research project, EVST 496

FACULTY ASSOCIATED WITH THE PROGRAM OF ENVIRONMENTAL STUDIES

Professors Mark Ashton (*School of the Environment*), Michelle Bell (*School of the Environment*), Gaboury Benoit (*School of the Environment*), Graeme Berlyn (*School of the Environment*), Ned Blackhawk (*History and American Studies*), Mark Bradford (*School of the Environment*), Derek Briggs (*Earth and Planetary Sciences*), Gary Brudvig (*Chemistry, Molecular Biophysics & Biochemistry*), Ingrid Burke (*School of the Environment*), Susan Clark (*School of the Environment, Adjunct*), Deborah Coen (*History*), Michael Donoghue (*Ecology & Evolutionary Biology, School of the Environment*), Michael Dove (*School of the Environment, Anthropology*), Robert Dubrow (*School of Public Health*), Anna Dyson (*Architecture, School of Environment*), Keller Easterling (*Architecture*), Menachem Elimelech (*Chemical & Environmental Engineering*), Daniel Esty (*School of the Environment, Law School*), Eduardo Fernandez-Duque (*School of the Environment*), Walter Jetz (*Ecology and Evolutionary Biology, School of the Environment*), Ben Kiernan (*History*), Matthew Kotchen (*School of the Environment, Economics*), Douglas Kysar (*Law School*), William Lauenroth (*School of the Environment*), Xuhui Lee (*School of the Environment*), Robert Mendelsohn (*School of the Environment, Economics*), Alan Mikhail (*History*), Jeffrey Park (*Earth and Planetary Sciences*), Peter Perdue (*History*), Stephen Pitti (*History, American Studies*), Alan Plattus (*Architecture*), David Post

(*Ecology & Evolutionary Biology*), Jeffrey Powell (*Ecology & Evolutionary Biology, School of the Environment*), Daniel Prober (*Physics, Physics & Electrical Engineering*), Peter Raymond (*School of the Environment*), Paul Sabin (*History*), James Saiers (*School of the Environment*), Oswald Schmitz (*School of the Environment, Ecology & Evolutionary Biology*), James Scott (*Political Science, Anthropology*), Karen Seto (*School of the Environment*), Kalyanakrishnan Sivaramakrishnan (*Anthropology, School of the Environment*), David Skelly (*School of the Environment, Ecology & Evolutionary Biology*), Stephen Stearns (*Ecology & Evolutionary Biology*), Peter Swenson (*Political Science, Institution for Social and Policy Studies*), Dorceta Taylor (*School of the Environment*), Charles Tomlin (*School of the Environment*) (*Visiting*), Gerald Torres (*School of the Environment, Law*), Paul Turner (*Ecology & Evolutionary Biology*), John Wargo (*School of the Environment*), John Warner (*History of Medicine, American Studies, History*), Michael Warner (*English, American Studies*), Harvey Weiss (*Near Eastern Languages & Civilizations, Anthropology*), Carl Zimmer (*Molecular Biophysics and Biochemistry, Adjunct*) Julie Zimmerman (*Chemical & Environmental Engineering*)

Associate Professors Laura Barraclough (*American Studies*), Craig Brodersen (*School of the Environment*), Marian Chertow (*School of the Environment*), Kenneth Gillingham (*School of the Environment, Economics, School of Management*), Jennifer Raab (*History of Art*), Elihu Rubin (*Architecture*), Carla Staver (*Ecology and Evolutionary Biology*), David Vasseur (*Ecology & Evolutionary Biology*)

Assistant Professors Anjelica Gonzalez (*Biomedical Engineering*), Krystal Pollitt (*Engineering and Applied Science*), William Rankin (*History, History of Science*)

Senior Lecturers Shimon Anisfeld, Carol Carpenter, Amity Doolittle, John Grim, Mary Evelyn Tucker, Marta Wells

Lecturers Alan Burdick, Ian Cheney, Mary Beth Decker, Marlyse Duguid, Michael Fotos, Kealoha Freidenburg, Gordon Geballe, Robert Klee, Linda Puth, Catherine Skinner

See visual roadmap of the requirements.

Ethics, Politics, and Economics

Director of undergraduate studies: Bonnie Weir (dus.epe@yale.edu), 115 Prospect St.; epe.yale.edu

In an era of global interdependence and rapid technological change, we need to think practically about the institutional dynamics of power and governance. We have to understand the technical complexities of economic and statistical analysis at the same time that we think critically about basic moral and political choices. Constructive responses to such problems as coping with natural and social hazards, allocation of limited social resources (e.g., medical care), or morally sensitive political issues (e.g., affirmative action and war crimes) require close knowledge of their political, economic, and social dimensions, and a capacity to think rigorously about the basic questions they raise.

The major in Ethics, Politics, and Economics joins the analytic rigor of the social sciences and the enduring normative questions of philosophy to promote an integrative and critical understanding of the institutions, practices, and policies that shape the contemporary world.

INTRODUCTORY REQUIREMENTS

Students must successfully complete eight introductory courses before they can declare as an EP&E major. Students are very strongly encouraged to complete these introductory courses before the beginning of their fifth semester, because of the demands of the overall EP&E course load and the related need to demonstrate ability to complete the major.

Introductory courses required to declare the Ethics, Politics, and Economics major include the following:

1. The Ethics course PHIL 175 or Directed Studies*
2. A course in Other Perspectives, from disciplines such as Anthropology; Ethnicity, Race, and Migration; History; Sociology; Women's, Gender, and Sexuality Studies; or Directed Studies*
3. A course in Political Philosophy, choosing from PHIL 178, PLSC 114, PLSC 118, PLSC 108 or Directed Studies*

*Students completing two full terms of Directed Studies fulfill the first three introductory requirements.

4. A Political Science introductory course in one of the following Political Science subfields: international relations (PLSC 111), comparative politics (PLSC 116), or American politics (PLSC 113)
5. A course in Introduction to Microeconomics, choosing from ECON 108, ECON 110 or ECON 115
6. A course in Introduction to Macroeconomics, choosing from ECON 111 or ECON 116
7. A course in Econometrics, choosing from ECON 117, 123, 135, GLOBL 121, S&DS 230, or S&DS 238

8. A course in Game Theory, choosing from EP&E 220, 231, 295, 297, or ECON 159

MAJOR REQUIREMENTS

Students must take fifteen term courses, including three core courses in two of three core areas, one of which must be EP&E 215, EP&E 216, or EP&E 217; three concentration area courses (including the senior requirement) which comprise a student's individual area of concentration; and ECON 121 or 125. The concentration is developed in consultation with the DUS and should culminate in a senior essay written in the area defined by the concentration.

Core courses The major requires that students take three core courses: one course selected from EP&E 215, EP&E 216, or EP&E 217, and two additional core courses from the major's three core areas (Ethics, Politics, Economics), one of which must be an advanced seminar anchored in at least two of the major's three core areas of ethics, politics, or economics. The DUS can offer guidance regarding appropriate courses to fulfill this requirement. The approved core courses, specified annually, can be found on a list of approved EP&E core courses on the EP&E website and by searching Yale Course Search for attributes: YC EP&E Ethics Core, YC EP&E Politics Core; YC EP&E Economics Core.

Areas of concentration Each student defines an area of concentration with review by the DUS by the end of their junior year. The concentration enables students to frame an important problem and shape a systematic course of inquiry, employing analytical methods and substantive theories drawn from the three fields. Students should not only recognize the accomplishments of varied interdisciplinary efforts, but also attempt to represent and in some cases further develop those accomplishments in their own work. For many students, the concentration treats a contemporary problem with a substantial policy dimension (domestic or international), but some students may wish to emphasize philosophical and methodological issues. The area of concentration culminates in the senior essay.

Areas of concentration must consist of three courses appropriate to the theme, including the seminar or independent study course in which the senior essay is written (see "Senior Requirement" below.) At most, one of these three courses may be a lecture course. In designing the area of concentration, students are encouraged to include seminars from other departments and programs. In designing the area of concentration, students are encouraged to include seminars from other departments and programs (see "graduate work" below.) The DUS will also require students to show adequate competence in data analysis when the area of concentration requires it.

The following are examples of possible areas of concentration: distributive justice, government regulation of market economies, environmental policy, philosophy of law, gender relations, democracy and multiculturalism, contemporary approaches to public policy, war and coercion, war crimes and crimes against humanity, medical ethics, international political economy, philosophy of the social sciences, social theory and ethics, cultural analysis and political thought, and civil society and its normative implications. However, students may wish to frame their own concentration more precisely.

Graduate work Some graduate and professional school courses are open to qualified undergraduates and may be of interest to EP&E majors, especially as potential

concentration courses (e.g., courses in the Schools of Nursing, Forestry and Environmental Studies, Management, and Public Health). Permission to enroll is required from the instructor as well as the appropriate representative of the graduate or professional program. EP&E requires that graduate and professional school courses carry one, full Yale College course credit, and it is important to note that not all such courses yield a full course credit in Yale College. See Academic Regulations, section L, Special Academic Arrangements, “Courses in the Yale Graduate and Professional Schools.”

Credit/D/Fail Students admitted to the major may take one of their Ethics, Politics, and Economics courses Credit/D/Fail, excluding the seminar in which the senior essay is written. Such courses count as non-A grades in calculations for Distinction in the Major.

SENIOR REQUIREMENT

A senior essay is required for the major and should constitute the intellectual culmination of the student's work in Ethics, Politics, and Economics. The essay should fall within the student's area of concentration and may be written within a relevant seminar, with the consent of the instructor and approval of the DUS. If no appropriate seminar is offered in which the essay might be written, the student may instead enroll in EP&E 491 with approval of a faculty member who will supervise the essay. Students who wish to undertake a more substantial, yearlong essay may enroll in EP&E 492, 493.

The senior essay reflects more extensive research than an ordinary Yale College seminar paper and employs a method of research appropriate to its topic. Some papers might be written entirely from library sources; others may employ field interviews and direct observation; still others may require statistical or econometric analysis. The student should consult frequently with the seminar instructor or adviser, offering partial and preliminary drafts for criticism. Students are encouraged to incorporate analysis using the tools of all three of the major's fields.

Senior essays written in the fall term are due in early December. Senior essays written in the spring term and yearlong essays are due in mid-April. One-term essays are normally expected to be 40–50 pages in length; yearlong essays are normally expected to be 80–100 pages in length.

SUMMARY OF MAJOR REQUIREMENTS

Introductory requirements 8 introductory courses as indicated

Number of courses 15 (including intro and senior requirement)

Specific courses required EP&E 215, 216, or 217; ECON 121 or ECON 125

Distribution of courses 3 core courses (one of which is EP&E 215, 216, or 217), and 2 seminars in 2 of the 3 core areas, one of which must be an advanced seminar (see EP&E's website for annual list of approved core courses); 3 concentration courses including the senior requirement course in area of concentration defined by student with review by the DUS

Senior requirement Senior essay in area of concentration (in an advanced seminar or in EP&E 491 or in EP&E 492 and 493)

FACULTY ASSOCIATED WITH THE PROGRAM OF ETHICS, POLITICS,
AND ECONOMICS

Professors Seyla Benhabib (*Political Science, Philosophy*), Dirk Bergemann (*Economics*), Donald Brown (*Economics*), David Cameron (*Political Science*), Stephen Darwall (*Philosophy*), Ron Eyerman (*Sociology*), Bryan Garsten (*Political Science*), Jacob Hacker (*Political Science*), Shelly Kagan (*Philosophy*), Joseph LaPalombara (*Emeritus*) (*Political Science*), Giovanni Maggi (*Economics*), William Nordhaus (*Economics*), Thomas Pogge (*Philosophy*), Douglas Rae (*Political Science*), John Roemer (*Political Science*), Susan Rose-Ackerman (*Political Science, Law School*), Frances Rosenbluth (*Director*) (*Political Science*), Ian Shapiro (*Political Science*), Jason Stanley (*Philosophy*), Peter Swenson (*Political Science*), Steven Wilkinson (*Political Science*)

Senior Lecturer Boris Kapustin (*Political Science*)

Lecturers Elaine Dezenski (*Global Studies*), Michael Fotos (*Political Science*), Karen Goodrow (*Political Science*), Stephen Latham (*Political Science*)

See visual roadmap of the requirements.

Ethnicity, Race, and Migration

Director of undergraduate studies: Albert Laguna (albert.laguna@yale.edu), 318 HQ, 432-6333

The program in Ethnicity, Race, and Migration enables students to engage in an interdisciplinary, comparative study of forces that have created a multicultural, multiethnic, and multiracial world. The major emphasizes familiarity with the intellectual traditions and debates surrounding the concepts of indigeneity, ethnicity, nationality, and race; grounding in both the history of migration and its contemporary manifestations; and knowledge of and direct engagement with the cultures, structures, and peoples formed by these migrations.

REQUIREMENTS OF THE MAJOR

Students must complete twelve term courses in Ethnicity, Race, and Migration, including the senior requirement. These twelve normally include ER&M 200, an introductory course on the issues and disciplines involved in the study of ethnicity, race, and migration. In the junior year, all majors are required to take ER&M 300, a seminar that introduces majors to scholarship in ethnic studies, postcolonial studies, and cultural studies. Students may take up to two courses required for the major in other departments, if the courses have content related to topics of ethnicity, race, and migration. These courses must be approved by the DUS.

Area of concentration In consultation with the director of undergraduate studies (DUS), each student defines an area of concentration consisting of six term courses, one of which must be a methods course; these concentration courses do not include the senior essay or project. Advanced work in a language related to a student's area of concentration is advised.

Credit/D/Fail No more than two courses taken Credit/D/Fail may be counted toward the major with permission of the DUS. ER&M 300 and courses counting toward the senior requirement may not be taken Credit/D/Fail.

SENIOR REQUIREMENT

There are two options for the senior requirement. Majors may choose a yearlong senior essay or project and take the senior colloquium (ER&M 491) on theoretical and methodological issues in the fall and then complete the requirement by writing a senior essay in the senior project seminar (ER&M 492) during the spring term. Alternatively, students may take two upper-level ER&M seminars, and in one of the seminars, with the instructor's approval, write a final paper of 20-25 pages in addition to completing other course requirements. These seminars may be taken during either the fall or spring term.

ADVISING

Prospective majors should consult the DUS early in their academic careers to discuss an individual plan of study. Enrollment in the major requires permission of the DUS prior to the beginning of the fall term of the junior year.

As a multidisciplinary program, Ethnicity, Race, and Migration draws on the resources of other departments and programs in the University. Students are encouraged to examine the offerings of other departments in both the humanities and the social

sciences, interdisciplinary programs of study housed in the MacMillan Center and elsewhere, and Residential College Seminars for additional relevant courses. The stated area of concentration of each student determines the relevance and acceptability of other courses. Students are also encouraged to engage in community-based learning opportunities.

STUDY ABROAD

Because of the major's emphasis on international and transnational work, students are encouraged to undertake a term abroad. They should consult with the DUS to identify courses from study abroad programs that may count toward the major.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required ER&M 200, ER&M 300

Distribution of courses 6 courses in the area of concentration, 1 of which must be a methods course; 2 additional courses with ER&M content and DUS approval

Senior requirement Senior colloq (ER&M 491) and senior essay or project (ER&M 492); or senior essay in upper-level seminar and one additional upper-level seminar

FACULTY ASSOCIATED WITH THE PROGRAM OF ETHNICITY, RACE, AND MIGRATION

Professors Laura Barraclough (*American Studies*), Ned Blackhawk (*History, American Studies*), Alicia Schmidt Camacho (*Ethnicity, Race, and Migration, American Studies*), Michael Denning (*American Studies, English*), Fatima El-Tayeb (*Ethnicity, Race and Migration, Women's, Gender, & Sexuality Studies*), Roderick Ferguson (*American Studies, Women's, Gender, & Sexuality Studies*), Daniel Martínez HoSang (*American Studies, Ethnicity, Race, and Migration*), Matthew Jacobson (*American Studies, African American Studies, History*), Gilbert Joseph (*History*), Grace Kao (*Sociology*), Lisa Lowe (*American Studies*), Mary Lui (*American Studies, History*), Stephen Pitti (*History, American Studies*), Ana Ramos-Zayas (*American Studies, Ethnicity, Race, and Migration, Women's, Gender, & Sexuality Studies*), Kalindi Vora (*Ethnicity, Race and Migration, Women's, Gender, & Sexuality Studies*)

Associate Professors Zareena Grewal (*American Studies, Ethnicity Race & Migration*), Albert Laguna (*American Studies, Ethnicity, Race, and Migration*), Daniel Magaziner (*History*)

Assistant Professors Tarren Andrews (*Ethnicity, Race, and Migration*), Leigh-Anna Hidalgo (*Ethnicity, Race, and Migration*), Hi'ilei Hobart (*Ethnicity, Race, and Migration*), Sunny Xiang (*English*)

Lecturers Aaron Carico (*American Studies, African American Studies*), Ximena Lopez Carillo (*Ethnicity, Race, and Migration*), Leah Mirakhor (*American Studies, Ethnicity, Race, and Migration*), Joanna Radin (*History of Science & Medicine, History, Anthropology, American Studies, Ethnicity, Race, and Migration*), David Simon (*Political Science*), Quan Tran (*American Studies, Ethnicity, Race, and Migration*)

Visiting Lecturer Gary Okihiro (*Ethnicity, Race, and Migration, American Studies*)

See visual roadmap of the requirements.

Ethnography Certificate

Certificate director: Zareena Grewal (zareena.grewal@yale.edu)

Ethnography is both a set of qualitative research methods employed in the humanities and social sciences and a mode of presenting that research—in books and articles, in film and video, in embodied performance, and, increasingly, in digital formats and multiple media.

REQUIREMENTS

Students must successfully complete six courses. At least four of the six courses must be at the 300-level or above. At least two of the six courses, including at least one at the 300-level or above, must include substantial methods training and/or a practical ethnographic component. The minimum grade for all courses must be a C.

Courses that fulfill these requirements are listed on the Ethnography Certificate website (coming soon) and are searchable in Yale Course Search (YCS) using the following attributes: YC Ethnography: Elective and YC Ethnography: Methods. Other courses may be approved by permission of the certificate director.

Students must also attend two public talks or other events that feature ethnography and submit to the certificate director one-page critical reflections on each of these talks. The Ethnography Certificate website will maintain updated links to the Ethnography Hub, Ethnography and Social Theory Colloquium series, Workshop in Urban Ethnography, Qualitative Social Science Initiative, and other campus series that regularly feature ethnography-informed events.

Additionally, no more than two course credits may overlap in the fulfillment of the requirements of the Ethnography certificate and of a major, a simultaneous degree, or another certificate; and no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Approved graduate and professional school courses may count toward the certificate. Non-Yale courses may not count toward the certificate.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the certificate.

Declaration of Candidacy

Students should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the form, and approval from the Certificate Director, is necessary to ensure that the earned Certificate appears on student transcripts.

SUMMARY OF REQUIREMENTS

Number of courses 6 course credits

Distribution of courses 4 courses at 300-level or above; 2 courses indicated as methods course with 1 at 300-level or above

Additional requirements attendance at 2 public talks and submission of 1-page critical reflections for each

Film and Media Studies

Director of undergraduate studies: Marta Figlerowicz (marta.figlerowicz@yale.edu); filmstudies.yale.edu/undergraduate

The major in Film and Media Studies focuses on the history, theory, criticism, and production of cinema and other moving-image media. Courses examine cinema and the broader landscape of audiovisual media as significant modern art forms, and the contributions of moving-image media as cultural and communicative practices of enduring social significance. As an interdisciplinary program centered in the humanities, Film and Media Studies offers students latitude in defining their course of study within the framework established by the Film and Media Studies Committee. With this freedom comes the responsibility of carefully planning a coherent and well-focused program. Because of the special demands of Film and Media Studies and the diversity of its offerings, potential majors are encouraged to consult the director of undergraduate studies (DUS) early in their academic careers.

PREREQUISITE

Students normally take FILM 150 in their first or second year. This course is useful preparation, and in some cases a prerequisite for other courses in the major.

REQUIREMENTS OF THE MAJOR

The Film and Media Studies major consists of twelve term courses, including the prerequisite and the senior requirement. Students are required to take FILM 160 and FILM 320, preferably by the end of their sophomore year. In addition, students are required to take one upper-level course in the study of representative films from a non-American national cinema (e.g. German expressionist cinema, Italian cinema, or world cinema) and one upper-level course in critical studies: these are designated by attributes (YC FILM: World Cinema, YC FILM: Critical Studies) in Yale Course Search. Students also must take at least one course on the creative process in film, designated by the attribute YC FILM: Production in Yale Course Search. Courses taken outside the Film and Media Studies department do not count toward the major without the permission of the DUS. Admission to senior-level seminars is at the instructor's discretion, but the Film and Media Studies program ensures that every senior major gains admission to the required number of seminars.

The intensive major Students of substantial accomplishment and commitment to film and media studies are encouraged to pursue the intensive major. Students in the intensive major complete a senior project in production and also write a senior essay. The intensive major in Film and Media Studies is intended for students who are not pursuing two majors. Students must request approval from the Film and Media Studies Committee at the end of their junior year by submitting a proposal that outlines their objectives and general area of study.

Credit/D/Fail No more than one course taken Credit/D/Fail may be counted toward the major with permission of the DUS.

SENIOR REQUIREMENT

During the senior year, each student takes one or two senior-level seminars or the equivalent and submits a senior essay or senior project, which should represent

a culmination of work in the major and in Yale College. The senior requirement requires both critical writing and writing in images. Those undertaking creative senior projects should be expected to produce a paper of approximately fifteen pages in which the student discusses such questions as the genre to be used in the project, existing precedents for the topic, and his or her strategy in working on the project. Those undertaking to fulfill the senior requirement by writing a senior essay should additionally take a course in which they are expected to do, minimally, a small production assignment.

Majors graduating in December must submit their senior essays or senior projects to the DUS by Friday, December 8, 2023; those graduating in May, by Friday, April 26, 2024. A second reader assigned by the DUS participates in evaluating the essays and/or projects.

Preparation for a senior project Those students hoping to produce a film script or video as their senior project should make sure that they have taken enough courses in video production and screenwriting to be accepted into an advanced course in screenwriting or production. Senior creative projects in Film and Media Studies must be produced in conjunction with one such upper-level course. Students often start by completing FILM 161, 162 by the end of their sophomore year, and continue with FILM 355, 356 by the end of their junior year, to prepare for FILM 455, 456 or FILM 483, 484 in their senior year. Those students interested in screenwriting often begin with FILM 350. Students interested in filmmaking should also take courses in screenwriting, and vice versa. Some production courses are available in the summer program in Prague.

Senior project Students who wish to complete a senior project as an alternative to an essay must petition the Film and Media Studies Committee for approval of their project at the end of the junior year. Projects might include writing a screenplay in Advanced Screenwriting (FILM 487, 488) or producing a video. Students electing such an alternative should note that the project must be undertaken and accomplished over two terms. A limited number of students making films or videos are admitted to either the Advanced Fiction Film Workshop (FILM 483, 484) or the Documentary Film Workshop (FILM 455, 456), and receive three credits for their projects (two credits for FILM 483, 484 or FILM 455, 456, and one for FILM 493 or 494). Such a choice effectively commits students to one extra course in addition to the twelve courses required for the major, because FILM 493 or 494 does not count toward the twelve required courses when taken in conjunction with FILM 483, 484 or FILM 455, 456. Students may undertake a production project outside the workshops if (1) the Film and Media Studies Committee approves their petition, (2) they have found a primary adviser *qualified* and willing to provide the necessary supervision, and (3) they have identified the equipment necessary to execute the project. Such students may count FILM 493 and 494 toward the twelve courses required for the major.

Preparation for a senior essay Students in their senior year may prefer to write a senior essay rather than work on a creative project. To prepare, they should take advantage of the variety of courses in film and media history, criticism and theory offered by the program, including such topics as American independent cinema, film theory, and African American cinema.

Senior essay For the student writing a senior essay, several options are possible. First, the student may enroll in two terms of relevant senior-level seminars (usually courses numbered in the 400s) and write a substantial term paper of twenty-five pages, double-spaced, for one of these courses. Second, the student may do independent research on a yearlong senior essay (FILM 491, 492). This option is intended for students with clearly defined topics that do not relate closely to a senior-level seminar. Such research receives two terms of credit; the product of a two-term research essay is a work of at least fifty pages. Third, the senior requirement may be completed by combining one single-term senior-level seminar with one term of an independent research project (FILM 491 or 492), resulting in a paper of thirty-five pages. Whichever option is chosen, the essay should be written on a topic informed by the student's previous coursework at Yale College. The student intending to write a senior essay should submit a brief prospectus, approved by the proposed faculty adviser, to the DUS by the end of reading week in their junior year. If this petition is approved, the student should plan to submit an updated and elaborated prospectus for final approval by the DUS during the first two weeks of the first term of senior year. In researching and writing the essay, the student should consult regularly with the seminar instructor or adviser, supplying preliminary drafts as appropriate, and may consult with other faculty members as well.

ADVISING

Foreign languages Study of relevant languages is urged for all Film and Media Studies majors. Students considering graduate work should become proficient in French or another modern language. Those choosing to study film in relation to a foreign culture must have good listening and reading abilities in that language.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite FILM 150

Number of courses 12 term courses (incl prereq and senior req)

Specific courses required FILM 160 and FILM 320

Distribution of courses 1 upper-level national or world cinema course as specified; 1 upper level critical studies course; 1 production course

Senior requirement For *senior essay*—2 terms of senior-level seminars, or 2 terms of senior essay (FILM 491, 492), or 1 term of a senior-level seminar and one term of FILM 491 or 492; for *senior project*—2 terms of senior project in FILM 455, 456, or FILM 483, 484, and either FILM 493 or 494, for a total of 13 term courses; or 2 terms of senior project in FILM 487, 488; or 2 terms of senior project in FILM 493, 494 *with approved petition*

Intensive major Both senior project in production and senior essay

FACULTY ASSOCIATED WITH THE PROGRAM OF FILM AND MEDIA STUDIES

Professors *Dudley Andrew (*Comparative Literature, Film & Media Studies, Emeritus*), *Francesco Casetti (*Humanities, Film & Media Studies*), *Katerina Clark (*Comparative Literature, Slavic Languages and Literatures*), *Aaron Gerow (*East Asian Languages and Literatures, Film & Media Studies*), *John MacKay (*Film & Media Studies, Slavic Languages and Literatures*), *Millicent Marcus (*Italian*), *Charles Musser

(*American Studies, Film & Media Studies*), Fatima Naqvi (*German*), *John Durham Peters (*English, Film & Media Studies*), *Katie Trumpener (*Comparative Literature, English*), Laura Wexler (*American Studies, Women's, Gender, and Sexuality Studies*)

Associate Professors Marta Figlerowicz (*Comparative Literature, English*), Moira Fradinger (*Comparative Literature*), Zareena Grewal (*Ethnicity, Race, & Migration*), Brian Kane (*Music*), *R. John Williams (*English*)

Assistant Professor Marijeta Bozovic (*Slavic Languages and Literatures, Film & Media Studies, Women's, Gender, and Sexuality Studies*)

Professor in the Practice Thomas Allen Harris (*African American Studies, Film & Media Studies*)

Senior Lecturer Camille Thomasson (*Film & Media Studies*)

Lecturers Jonathan Andrews (*Art, Film & Media Studies*), Oksana Chefranova (*Film & Media Studies*), Nicholas Forester (*Film & Media Studies*)

Senior Lectors Krystyna Illakowicz (*Slavic Languages and Literatures*), Karen von Kunes (*Slavic Languages and Literatures*)

*Member of the Film and Media Studies Advisory Committee.

First-Year Seminar Program

The First-Year Seminar program offers a diverse array of courses open only to first-year students and designed with first-year students in mind. Enrollment in seminars is limited to fifteen or eighteen students, depending on the nature of the course. Most seminars meet twice each week and do not, unless otherwise noted, presume any prior experience in the field. Students must apply for First-Year Seminars before the beginning of each term. To ensure that all applicants share an equal chance at enrolling in a seminar, students are admitted by lottery from among those who apply. Students who do not apply, or who do not secure a space through the lottery, may be considered for placement at the instructor's discretion if space becomes available. Information regarding application procedures may be found on the program website.

French

Director of undergraduate studies: Thomas C. Connolly
(thomas.c.connolly@yale.edu) [spring 2023]; Morgane Cadieu
(morgane.cadieu@yale.edu) [fall 2023, spring 2024]; Language program
director: Candace Skorupa, (candace.skorupa@yale.edu) 320 York St., Rm. 339;
432-2765; french.yale.edu

The Department of French has two distinct but complementary missions: to provide instruction in the French language at all levels of competence, and to lead students to a broad appreciation and deep understanding of the literatures and cultures of France and other French-speaking countries.

The major in French is a liberal arts major, designed for those who wish to study French-language literatures, arts, and cultures in depth. The department offers courses devoted to authors, works, and literary and cultural movements that span ten centuries and four continents. The curriculum also includes interdisciplinary courses on relations between literature and other areas of study such as history, law, medicine, religion, politics, business, translation, and the arts. Majors are encouraged to explore all periods and genres of literature in French, as well as a wide variety of critical approaches.

Excellent knowledge of a foreign language and a mature, informed appreciation of a foreign literature and culture can open doors to various professions. The French major provides ideal preparation for careers in a wide range of fields from law and diplomacy to journalism, teaching, academia, publishing, and the arts. Recent graduates have gone on to selective law schools, medical schools, and graduate programs in French and Comparative Literature. Others work in business, government, primary and secondary education, and a variety of nongovernmental agencies and international organizations.

French can be taken either as a primary major or as one of two majors, in consultation with the director of undergraduate studies (DUS). Regulations concerning the completion of two majors can be found in the Academic Regulations, section L, Special Academic Arrangements, "Two Majors."

COURSE NUMBERING

Group A courses (FREN 110–159) This group consists of language courses that lead to courses counting toward the major. Preregistration is required for all Group A courses except FREN 125 and 145. FREN 121 (the stand-alone L2) is offered only during the fall term. For this reason, students placed into L1 or L2 who were not enrolled in a fall-term course will have to wait until the next fall to enroll. For further details, students should consult Candace Skorupa, (candace.skorupa@yale.edu) the language program director (LPD).

Group B courses (FREN 160–449, not including Group C courses) This group contains more advanced courses that are taught in French and count toward the major. FREN 160 and 170 are gateway courses that prepare students for courses numbered FREN 200 and above. Courses in the FREN 180–189 range are advanced language courses. Courses in the 190–199 range are translation courses. Courses numbered 200–449 are advanced courses in literature and culture. The 200–299 range contains courses devoted to broad, general fields defined by century or genre; the 300–

449 range contains courses devoted to specific topics within or across those general fields.

Group C courses This group comprises courses taught in English; readings may be in French or English. Two term courses from this group may be counted for credit toward the major.

LANGUAGE PLACEMENT PROCEDURES

The departmental placement exam in French is accessible online. Dates and information for the exam will be available on the French department website, in the Calendar for the Opening Days of College, and on the Center for Language Study website. Placement exam results remain valid for one year.

All students who have not yet studied French at Yale (except those who have had no previous exposure to French whatsoever) are expected to take the departmental placement exam. Students who studied abroad over the summer with non-Yale programs must take the placement exam to be eligible to receive credit for their work.

Students who earned superior scores on standardized tests may be able to enroll in a course designated L5. The department strongly recommends, however, that advanced students of French take the departmental placement exam in order to be directed to the most appropriate courses. Students who earned a score of 5 on the Advanced Placement exam, a score of 6 or 7 on the advanced-level International Baccalaureate (IB) exam, a rating of C1 on the CEFR European test, or an A or B on the GCE A-level exam are normally placed into a course at the 150 level and above.

PREREQUISITE

The prerequisite may be fulfilled by taking FREN 150, which should be taken during the first or second year. In consultation with the DUS, students may instead choose to select a course numbered 200-449 to fulfill the prerequisite. Prospective majors are strongly encouraged to take at least one literature course numbered 170 or above before the end of the second year.

REQUIREMENTS OF THE MAJOR

The standard major The standard major consists of ten term courses numbered 160 or above, including a one-term senior essay (see below). One of these ten courses must be FREN 170 which should be completed early in a candidate's studies, or, in consultation with the DUS, an equivalent course in French from the 200-449 range; at least four must be Group B courses numbered 200 or above. Students may count no more than two courses in the FREN 180-199 range (unless they opt for the translation track, see below). No more than two courses conducted entirely in English (Group C) may count toward the major. With prior approval of the DUS, a maximum of four term courses taught outside the Yale Department of French but bearing directly on the student's principal interest may be counted toward the major. Up to two of these may be taken in other departments at Yale, and up to four may be taken as part of a Year or Term Abroad or summer study abroad program. However, the combined number of courses from other departments and from study abroad may not exceed four. The DUS may grant exceptions to this limit for students who spend two academic terms in an approved study abroad program. Relevant first-year seminars may count toward the major, with permission of the DUS.

The intensive major The intensive major is designed for students who wish to undertake a more concentrated study of literature and culture in French. It is recommended for students considering graduate study in French or in a related field. The intensive major consists of twelve term courses numbered 160 or above, including a one-term or two-term senior essay (see below). At least five courses must be from Group B numbered 200 or above. The requirement of FREN 170 (or an equivalent 200–449 course), and the stipulations for courses in the 180–199 range, courses conducted in English, and courses taken outside the department are identical to those for the standard major.

Period requirement for students in the class of 2025 and beyond A minimum of one of the ten courses toward the major, or one of the twelve courses toward the intensive major, must deal predominantly with materials from the period preceding 1800. The pre-1800 course may be either a Group B (taught in French) or a Group C course (taught in English). This requirement applies to all French majors, including those who opt for the standard or intensive translation track.

Translation track Students may elect to pursue the translation track within the French major. Translation track majors are expected to take a minimum of two courses in French translation as two of the ten credits required for the standard major, or twelve credits required for the intensive major. Within the department, this requirement can be fulfilled by taking FREN 191 and 192. Students who opt for the translation track may in this case take up to four courses numbered 180–199, rather than the standard two courses. For their senior requirement, translation track students undertake a literary translation project of similar length to the senior essay (see below).

Credit/D/Fail One required course taken Credit/D/Fail may be counted toward the major (excluding the senior essay requirement).

SENIOR REQUIREMENT

All majors must write a senior essay showing evidence of careful reading, appropriate research, and substantial independent thought. Essays may be written in either French or English and must be prepared under the direction of a ladder faculty member in the Department of French. Students planning to pursue advanced work in French after graduation are encouraged to write their senior essay in French.

Students writing a one-term essay enroll in FREN 491 in the senior year. A one-term essay may be written in either the fall or the spring term and should be approximately thirty pages in length. A preliminary statement indicating the general area to be addressed and the name of the adviser must be submitted to the DUS by April 17, 2023 (fall-term essay), or November 3, 2023 (spring-term essay). A one-page prospectus and bibliography are due September 15, 2023 (fall term), or January 26, 2024 (spring term). A rough draft must be submitted to the adviser by October 30, 2023 (fall term), or March 25, 2024 (spring term). Two copies of the final essay are due in the department by December 1, 2023 (fall term), or April 22, 2024 (spring term).

Students electing a two-term essay must select their subject and adviser before the end of the junior year and enroll in FREN 493 and FREN 494 during the senior year. The essay should be around sixty pages in length. A preliminary statement indicating the general area to be addressed and the name of the adviser must be submitted to the DUS by April 17, 2023. A one-page prospectus and bibliography are due September 15,

2023. Students must submit an initial rough draft to their adviser by January 26, 2024, and a complete draft by March 25, 2024. Two copies of the final essay are due in the department by April 22, 2024.

Translation track majors undertake a literary translation project from French into English of similar length to the senior essay, working with a member of the French department ladder faculty. The senior translation project should include a critical introduction, of a length to be determined by the student in consultation with the directing faculty member. The same submission dates as for the one-term essay and the two-term essay apply to the senior translation project. Translation track students should sign up for FREN 492 for the single-term senior translation project or for FREN 495 and 496 for the two-term senior translation project, in the fall and spring terms respectively. Materials submitted for the senior translation project cannot be the same as the materials submitted for any translation courses that count toward a major at Yale College.

ADVISING

All students in the major are encouraged to take as many advanced courses as possible from all historical periods, covering as many genres and critical approaches as possible. As stipulated above, all majors in the Class of 2025 and beyond are also required to take at least one course dealing predominantly with pre-1800 materials. Candidates for the major should make contact with the DUS as early as the beginning of the sophomore year and no later than the fall term of the junior year. Students planning to study abroad or to petition for completion of two majors should contact the DUS during the sophomore year.

Special Divisional Major The department will support the application of qualified students who wish to pursue an interdisciplinary course in French studies. Under the provisions of the Special Divisional Major, students may combine courses offered by the French department with courses from other departments. Close consultation with the relevant departmental advisers is required. Candidates for the Special Divisional Major should consult the DUS in French by the fall term of the junior year.

Study abroad Students are encouraged to spend a term or a year abroad, for which appropriate course credit is granted. With prior approval of the DUS, summer study abroad may also receive course credit. Further information may be obtained from the Center for International and Professional Experience, from Yale Study Abroad, and from French Department's Study Abroad Coordinator, Constance Sherak (constance.sherak@yale.edu).

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in French.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite FREN 150 or equivalent as approved by the DUS

Number of Courses *Standard major and translation track*—10 term courses numbered 160 or above (including senior essay); *Intensive major and translation track*—12 term courses numbered 160 or above (including senior essay)

Specific Course Required FREN 170 or equivalent

Distribution of courses *Standard major*—at least 4 courses in Group B numbered 200 or above; no more than 2 courses numbered FREN 180–199; no more than 2 courses conducted in English; one pre-1800 course; *Intensive major*—same as standard, plus 1 additional Group B course numbered 200 or above; *Translation track (both standard and intensive)*—same as standard, except minimum of 2 translation courses and no more than 4 courses numbered FREN 180–199

Substitution permitted With prior approval of DUS, up to 4 term courses outside French Department, as specified

Senior requirement *Standard major*—one-term senior essay in French or English (FREN 491); *Translation track*—one-term literary translation from French into English (FREN 492); *Intensive major*—one-term (FREN 491) or two-term senior essay in French or English (FREN 493, 494); *Translation track, Intensive major*—one-term senior translation from French into English (FREN 492) or two-term literary translation from French into English (FREN 495, 496)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The French Department offers a Certificate of Advanced Language Study to Yale College undergraduates including French majors.

REQUIREMENTS

Students seeking to earn the Certificate of Advanced Language Study in French are required to take four courses beyond the L4 level, at least two of which must be Yale courses designated as L5. Additionally, the French Department requires that a minimum of one of the four required courses be a French Department course listed at the 200-level or above. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the DUS, one advanced non-L5 course, conducted in the target language, such as an independent study course or a graduate seminar may count toward certification requirements.

The DUS may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes a weekly discussion section conducted entirely in French. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The DUS may also approve the substitution of up to two credits earned during study abroad and taught in French to count toward the certificate requirements. If the DUS approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcript.

No courses taken Credit/D/Fail may be counted toward the requirements of the certificate. *(Please note that this rule does not apply to courses awarded a universal pass in Spring 2020.)*

The French DUS, Thomas C. Connolly (thomas.c.connolly@yale.edu), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study in French.

If you have any questions, please contact the French DUS Thomas C. Connolly (thomas.c.connolly@yale.edu) or the French Department Registrar Bethany Hayes (bethany.hayes@yale.edu).

FACULTY OF THE DEPARTMENT OF FRENCH

Professors R. Howard Bloch, Dominique Brancher, Ardis Butterfield, Marlene L. Daut, Carolyn Dean, Alice Kaplan, Pierre Saint-Amand, Maurice Samuels

Associate Professors Morgane Cadieu, Thomas C. Connolly

Assistant Professor Jill Jarvis

Senior Lecturer Lauren Pinzka

Senior Lectors Soumia Koundi, Matuku Ngame, Françoise Schneider, Constance Sherak, Candace Skorupa

Lecturer Nichole Gleisner

Lectors Ramla Bedoui, Léo Tertrain

German Studies

Director of undergraduate studies: Theresa Schenker (theresa.schenker@yale.edu), HQ 353, 432-6401; **Language program director:** Theresa Schenker (theresa.schenker@yale.edu), HQ 353, 432-6401; german.yale.edu

The major in German Studies covers a broad tradition of more than five centuries in Germany, Austria, Switzerland, and neighboring lands. Students gain deep competence in the German language while also reading celebrated literature, analyzing distinctive artworks in many media, deducing intensive theories, and exploring political, linguistic, and cultural histories. The German faculty works closely with undergraduates to develop their special areas of interest within the rich currents of German culture.

German language courses emphasize listening, speaking, reading, and writing in interaction with authentic cultural materials. The curriculum also introduces students to the basic questions and methods of literary criticism, with a focus on rigorous reading practices for a wide range of works from different genres, disciplines, and historical moments.

German Studies courses are diverse in their topics and highly relevant to other fields of study today. Pioneers in philosophy, political theory, sociology, psychology, history, classical philology, the visual arts, architecture, and music wrote and thought in German, as did founders of the modern natural and practical sciences. Majors discover Kant, Goethe, Beethoven, Einstein, Freud, Kafka, Arendt, and many other thinkers and writers who laid the groundwork for modernity and still hold keys to understanding it.

Germany is the fourth-largest economy in the world, and German is the first language of over 95 million people worldwide. Students with a foundation in the language, literature, history, and intellectual revolutions of Germany are prepared to enter a wide variety of vocations. Majors have gone on to postgraduate study in Germany and the United States, and many have entered top-tier law schools and graduate programs. Recent graduates work in fields as diverse as environmental policy, journalism, arts management, consulting, and engineering, as well as in governmental and nongovernmental organizations and businesses.

PREREQUISITES

Prerequisite to the major are first- and second-year German or the equivalent.

COURSE NUMBERING

Group A courses Courses in Group A (GMAN 110–159) correspond to Yale's L1 to L5 designation of elementary, intermediate, and advanced language courses.

Group B courses Courses in Group B (GMAN 160-level and 170-level) are advanced L5 courses. Readings are in German, and the language of instruction is German. There is no restriction on the number of Group B courses that may count toward the major, provided all requirements are met.

Group C courses Courses in Group C (above GMAN 200) are all other courses. The language of instruction is typically English, but readings may be in German and/or English. Course level and prerequisites vary according to the expectations of the instructors.

PLACEMENT PROCEDURES

An online placement examination is accessible all year. See the department website for details. Students may also consult with the director of undergraduate studies (DUS) or the language program director for advice about placement and about language study. Regardless of previous German study, students without a score of 5 on the German Advanced Placement test must take the departmental placement exam in order to enroll in any course above GMAN 110 or 125.

REQUIREMENTS OF THE MAJOR

The major in German Studies consists of ten term courses, including the senior essay. All majors must complete at least one GMAN course numbered in the 150s, one in the 160s, and one in the 170s, plus six additional courses—four in the area of concentration and two electives—from Groups B and C, numbered GMAN 160 and above. With permission of the DUS, some substitutions and exceptions may be possible.

Areas of concentration Each German Studies major selects an area of concentration from five choices: (1) literature, (2) media and media theory, (3) history and politics, (4) critical thought, and (5) aesthetics and the arts. The *literature* concentration gives students access to worlds of thought and action. Students learn to read critically poetry, novels, plays, short stories, aphorisms, songs, and other genres. Courses fulfilling the literature concentration include at least one course each in nineteenth- and twentieth-century literature. The concentration in *media and media theory* explores a vibrant tradition of experimentation in new cultural forms and media in the nineteenth and twentieth centuries. Students investigate photography, radio, film, television, and computer media alongside landmark works in media theory. The *history and politics* concentration focuses on world-altering historical events and thought-altering theories of history from the Germanic tradition. Students become familiar with explosive political and social events, including the emancipation of the Jews and the Holocaust, the world wars, unification and reunification, and concepts and models for development in economy, social welfare, law, and environmental policies. The concentration in *critical thought* focuses on traditions of theoretical reflection on society, history, art, and language. Students become familiar with authors such as Kant, Hegel, Marx, Nietzsche, Freud, Benjamin, and Habermas. The *aesthetics and the arts* concentration surveys the rich Germanic traditions in the visual and musical arts, as well as the philosophical study of art beginning in eighteenth-century Germany.

Credit/D/Fail A maximum of two courses taken Credit/D/Fail may count toward the major, with permission of the DUS.

SENIOR REQUIREMENT

Seniors in the standard German Studies major enroll in GMAN 492, a guided senior essay tutorial course. Students meet biweekly with the DUS and staff, and work under the direction of a faculty adviser. The culmination of the tutorial is an essay of approximately thirty pages that gives evidence of careful reading and substantial independent thought. The essay may be written in either English or German, although only native speakers are encouraged to write an essay in German. Seniors typically write the essay during the fall term. A preliminary statement indicating the general area to be addressed and the choice of adviser should be submitted to the DUS by early September; the final essay is judged by the faculty adviser and a second reader. See

Senior Essay Deadlines on the Department of Germanic Languages and Literatures for more information.

Intensive major Requirements for the intensive major are the same as for the standard major, except that the intensive major replaces one advanced seminar with a second term of the senior essay. In the fall term seniors in the intensive major enroll in GMAN 492 and begin work on their project under the guidance and supervision of a faculty adviser. A significant portion of the research for the essay should involve materials in German. The essay may be written in either English or German, although only native speakers are encouraged to write an essay in German. A detailed prospectus, no longer than three pages, and a bibliography must be submitted to the DUS by October 20, 2023. The student must submit a draft of at least fifteen pages of the essay by December 1, 2023, to receive credit for the first term of the course. The second term, GMAN 493, is devoted to completing the essay, which should be substantial (between fifty and sixty pages); the completed essay must be submitted by April 12, 2024. The senior essay is judged by the faculty adviser and a second reader. See the Department of Germanic Languages and Literatures for more information.

ADVISING

Candidates for the major in German Studies should consult the DUS.

Graduate courses Courses in the Graduate School are open to undergraduates with permission of the instructor and of the directors of undergraduate and graduate studies. Course descriptions may be obtained on the German department website or from the office of the director of graduate studies.

STUDY ABROAD

Students are strongly encouraged to study in Germany for a summer, or for one or two terms on the Year or Term Abroad program. Appropriate course credit toward the major is granted for work in approved programs in Germany. Study abroad is valuable not only for achieving comfortable fluency in German, but also for gaining firsthand knowledge of the German cultural context. The department offers diverse opportunities for study abroad and a scholarship program for summer courses at German universities. Members of the faculty advise and consult with any students wishing to plan study in Germany. Students who have been approved to study abroad and who receive financial aid from Yale are eligible for aid while abroad. For information about the Year or Term Abroad program, see Academic Regulations, section K, Special Academic Programs, “Year or Term Abroad.” Students who study abroad for one term may count up to two courses toward the major, with approval of the DUS. Students who study abroad for an academic year may count up to four courses toward the major, with approval of the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites First- and second-year German or equivalent

Number of courses 10 (incl senior req)

Distribution of courses At least 1 GMAN course in the 150s, at least 1 in the 160s, and at least 1 in the 170s; 4 courses in area of concentration and 2 electives (numbered

GMAN 160 and above) from Groups B and C; *Literature concentration* – at least 1 course each in 19th- and 20th-century literature

Substitution permitted With DUS approval, some substitutions and exceptions may be possible

Senior requirement Senior essay tutorial (GMAN 492)

Intensive major Two-term senior essay (GMAN 492 and 493)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Germanic Languages and Literatures offers a Certificate of Advanced Language Study in German. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in German. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The adviser may also approve the substitution of up to two credits earned during study abroad and taught in German to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study in German.

FACULTY OF THE DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURES

Professors Rüdiger Campe, Vivian Liska (*Visiting*), Fatima Naqvi, Paul North, Brigitte Peucker, Kirk Wetters (*Chair*)

Assistant Professor Sophie Schweiger

Senior Lectors II Marion Gehlker, Theresa Schenker

Senior Lecturer Lieselotte Sippel

Lecturers Joshua Price, Shila Rahmani Coutard

Affiliated Faculty Jeffrey Alexander (*Sociology*), Jennifer Allen (*History*), Seyla Benhabib (*Political Science*), David Cameron (*Political Science*), Paul Franks (*Philosophy, Judaic Studies*), Gundula Kreuzer (*Music*), Patrick McCreless (*Music*), Steven Smith (*Political Science*), David Sorkin (*History*), Nicola Suthor (*History of Art*), Katie Trumpener (*Comparative Literature, English*), Jay Winter (*History*)

See visual roadmap of the requirements.

Global Affairs

Director of undergraduate studies: Sigríður Benediktsdóttir,
(sigridur.benediktsdottir@yale.edu) 202 Horchow Hall, 432-3418; jackson.yale.edu/
academics/the-global-affairs-major/

The Global Affairs major prepares Yale students for global citizenship and service by enhancing their understanding of the world around them. Students in this interdisciplinary major develop expertise in contemporary global affairs that is strongly grounded in the social sciences.

Students in the Global Affairs major have the flexibility to shape their own curriculums according to their interests and ambitions. In the past, students have concentrated their coursework on economic development and poverty, global health, global climate policy, international relations, and foreign policy and diplomacy, with topics relevant to national and human security.

COURSES FOR NONMAJORS

Most Global Affairs courses are open to both majors and nonmajors. If a Global Affairs course requires an application, the application will be posted on the Jackson School of Global Affairs website.

PREREQUISITES

There are no prerequisites for the Global Affairs major. However, students interested in applying to the major are strongly encouraged to complete the following required introductory economics sequence (ECON 108, 110, or 115; and ECON 111 or 116) and work toward the language requirement early in their course planning. An introductory analysis course such as GLBL 121 is also suggested. These courses are all required for the major and progress towards completing them, at the time of application, will be considered.

REQUIREMENTS OF THE MAJOR

Thirteen term courses are required for the major in addition to a language requirement. Introductory courses in microeconomics (ECON 108, 110, or 115) and macroeconomics (ECON 111 or 116) are required, as is one intermediate course in either microeconomics or macroeconomics (ECON 121, 122, 125 or 126). All majors must take the core courses GLBL 225 and 275, and two courses in quantitative analysis, GLBL 121 and 122. GLBL 121 is recommended but can be replaced by other analysis courses including ECON 117 and S&DS 100–106, with approval of the director of undergraduate studies (DUS). All majors must take GLBL 122. Majors also take four electives and one methods course chosen from an approved group of courses in the departments of Global Affairs, History, Political Science, Economics, and other social science departments; and GLBL 499, Senior Capstone Project. For information about which courses qualify as electives (GLBL 121, 122, 225, and 275 may not count as electives.), see the course matrix on the Jackson School of Global Affairs website and the course listings in Yale Course Search.

Language requirement Global Affairs majors are required to take a course designated L5 in a modern language other than English. In exceptional cases, a demonstration of proficiency can fulfill this requirement.

Credit/D/Fail Courses taken Credit/D/Fail may not be applied to the requirements of the major, with the exception that a grade of Credit in an L5 language course may be used to demonstrate proficiency in a foreign language.

SENIOR REQUIREMENT

In the fall term of the senior year, majors must complete a capstone project in GLBL 499. Small groups of students are each assigned to a policy task force in which they apply their academic training in the social sciences to a specific problem relevant to global affairs. Each task force presents its findings and recommendations to a real-world client such as a government agency, a nongovernmental organization or nonprofit group, or a private-sector organization in the United States or abroad.

ADVISING AND APPLICATION TO THE MAJOR

Students apply to the Global Affairs major in the fall of the sophomore year. The number of students accepted into the major is limited, and selection is competitive. The call for applications is posted each year on the Jackson School of Global Affairs website, circulated through the residential college deans' offices, and noted on the Advising Resources website. For application information, visit the Jackson School of Global Affairs website.

Internships Students in the major are encouraged to take a summer internship in the field of global affairs after their junior year. The Jackson School Career Resources Office can help students find appropriate internships.

STUDY ABROAD

Global Affairs majors who plan to study abroad should consult the director of undergraduate studies (DUS) to devise a course of study prior to the term abroad.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 (incl senior req; excluding lang req)

Specific courses required ECON 108, 110, or 115; ECON 111 or 116; ECON 121, 122, 125, or 126; GLBL 225; GLBL 275; GLBL 121; GLBL 122

Distribution of courses 4 approved electives and 1 methods course

Language requirement Advanced ability (L5) in 1 modern lang other than English

Substitution permitted With DUS approval, GLBL 121 may be replaced by other analysis courses including ECON 117 and S&DS 100–106

Senior requirement Senior capstone project in GLBL 499

FACULTY ASSOCIATED WITH THE PROGRAM OF GLOBAL AFFAIRS

Professors David Engerman (*History*), John Gaddis (*History*), Jacob Hacker (*Political Science*), Oona Hathaway (*Law*), Robert T. Jensen (*School of Management*), Amy Kapczynski (*Law, Global Health*), Paul Kennedy (*History*), James Levinsohn (*Director*) (*School of Management*), A. Mushfiq Mobarak (*School of Management*), Samuel Moyn (*Law*), Catherine Panter-Brick (*Anthropology*), Peter Schott (*Economics, School of Management*), Ian Shapiro (*Political Science*), Timothy Snyder (*History*), Jing Tsu (*East*)

Asian Languages and Literatures), Aleh Tsyvinski (*Economics*), Arne Westad (*History*), Steven Wilkinson (*Political Science*), Ernesto Zedillo (*International Economics & Politics*)

Associate Professors Alexandre Debs (*Political Science*), Kaveh Khoshnood (*School of Public Health*), Jason Lyall (*Political Science*), Nuno Monteiro (*Political Science*), Marci Shore (*History*), Jonathan Wyrzten (*Sociology, International Affairs*)

Assistant Professors Lorenzo Caliendo (*Economics, School of Management*), Zack Cooper (*School of Public Health*), Gregg Gonsalves (*School of Public Health*), Lloyd Grieger (*Sociology*), Alice Miller (*School of Public Health, Law*), Thania Sanchez (*Political Science*), Kristina Talbert-Slagle (*School of Medicine, Global Health*)

Senior Lecturers Marnix Amand, Sigríður Benediktsdóttir, Charles Hill (*International Security Studies*), Asha Rangappa, Justin Thomas

Lecturers Michael Brenes, Christopher Fussell, William Casey King, Nicholas Lotito (*Political Science*), Alice Miller (*Public Health, Law*), Jaimie Morse, Nathaniel Raymond, Daniel Steinmetz-Jenkins, Edward Wittenstein

Senior Fellows Eric Braverman, David Brooks, Howard Dean, Janine di Giovanni, Robert Ford, Clare Lockhart, Stanley McChrystal, Rakesh Mohan, David Rank, Stephen Roach, Emma Sky

See visual roadmap of the requirements.

Global Health Studies Certificate

Program director and chair: Catherine Panter-Brick; (catherine.panter-brick@yale.edu) **Director of undergraduate studies:** Cara Fallon (cara.fallon@yale.edu); Global Health Studies Program

GLOBAL HEALTH STUDIES CERTIFICATE

The Global Health Studies Program is a Multidisciplinary Academic Program that prepares students to critically engage with global health and its multifaceted concerns in contemporary societies. Global health is an interdisciplinary field, and as such, students develop a sophisticated understanding of the roles of politics, history, and economics, engage with the insights of anthropology, ethics, law, and sociology, and relate this knowledge to public health and the biomedical sciences. Students will be expected to complete interdisciplinary coursework to gain a broad understanding of global health research, practice, and leadership.

Students apply to the Program, typically in the fall of their sophomore year. Those accepted into the Program are called "Global Health Scholars." Global Health Scholars are expected to complete interdisciplinary coursework across four global health competency areas chosen from six options: Biological & Environmental Influences on Health (YC GLHTH: Bio & Env Influences); Health & Societies (YC GLHTH: Health & Societies); Historical Approaches (YC GLHTH: Hist Approaches); Performance, Representation & Health (YC GLHTH: Perf, Rep & Health); Political Economy & Governance in Health (YC GLHTH: Polit Econ & Govern); and Understanding & Interpreting Quantitative Data (YC GLHTH: Quantitative Data). Scholars can search for courses satisfying a competency area in Yale Course Search by clicking the drop-down menu entitled, "Any Course Information Attribute" and searching for the attribute as listed in parentheses after the competency title.

Moreover, in the summer after junior year, Scholars can apply for funding support to pursue mentored experiential learning projects (such as internships, archival work, or field-based research). During their senior year, they enroll in a colloquium course which meaningfully integrates the skills and knowledge acquired throughout the Program.

REQUIREMENTS

To fulfill the requirements of the program, Scholars must complete the global health introductory lecture course (HLTH 230), senior colloquium (HLTH 490), and four elective courses that fulfill four of the global health competency areas. Upon completion of the Global Health Studies Program, Scholars earn a Global Health Studies certificate.

No more than two course credits fulfilling the requirements of the Global Health Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Qualified undergraduates may take graduate courses at the School of Public Health, subject to restrictions on graduate and professional school enrollment described in Academic Regulations, section L, Special Academic Arrangements. Further information about these courses can be found in the School of Public Health online bulletin. For

information about the five-year B.A.–B.S./M.P.H. program offered jointly with the School of Public Health, see Public Health.

SUMMARY OF REQUIREMENTS

Prerequisite None

Number of courses 6 courses (incl senior req)

Specific course required HLTH 230

Distribution of courses 4 electives to achieve four of the six global health competencies as indicated

Senior requirement HLTH 490, Senior colloquium

Hellenic Studies

Chair: John Geanakoplos (john.geanakoplos@yale.edu), 30 Hillhouse Ave., 432-3397; **Director:** George Syrimis (george.syrimis@yale.edu), 34 Hillhouse Ave., 432-9342; <http://hsp.macmillan.yale.edu>

Hellenic Studies is a program of the European Studies Council. The core of the program is the teaching of modern Greek, supplemented with other courses and events related to the study of postantiquity Greece, as well as the society and culture of modern Greece and its interaction with the rest of Europe and the world. Related courses can be found in the listings of Anthropology, History, History of Art, Comparative Literature, Political Science, Religious Studies, and Russian and East European Studies. A major in Ancient and Modern Greek is described under Classics. Students who have an interest in postantiquity Greek language, society, or culture are advised to consult with the program director of the Hellenic Studies program.

FACULTY ASSOCIATED WITH THE PROGRAM OF HELLENIC STUDIES

Professor John Geanakoplos (*Economics*)

Senior Lecturer George Syrimis (*Comparative Literature*)

Lecturer Paris Aslanidis (*Political Science*)

Senior Lector Maria Kaliambou (*Language and Folklore*)

History

Director of undergraduate studies: Daniel Magaziner
(daniel.magaziner@yale.edu), 190 York St., 432-2724; history.yale.edu

The History major is for students who understand that shaping the future requires knowing the past. History courses explore many centuries of human experimentation and ingenuity, from the global to the individual scale. History majors learn to be effective storytellers and analysts, and to craft arguments that speak to broad audiences. They make extensive use of Yale's vast library resources to create pioneering original research projects. Students of history learn to think about politics and government, sexuality, the economy, cultural and intellectual life, war and society, and other themes in broadly humanistic—rather than narrowly technocratic—ways.

History is one of Yale College's most popular and intellectually diverse majors, encompassing nearly every region and time period of the global past. The study of history is excellent preparation for careers in many fields, including law, journalism, business and finance, education, politics and public policy, social activism, and the arts.

COURSE NUMBERING

Courses numbered HIST 001–099 are first-year seminars, with enrollment limited to eighteen. Remaining course numbers are organized by region, not by rigor or difficulty. Courses numbered in the 100s explore the history of the United States or Canada; those in the 200s, Europe, Russia, and Britain; and those in the 300s, Africa, Asia, Latin America, and the Middle East. Courses numbered in the 400s address global topics. Most of these courses are lecture courses, although some are seminars. Courses whose numbers end with the letter “J” are departmental seminars, which are research focused; all departmental seminars are available for preregistration by History majors and are capped at fifteen students.

PREREQUISITE

The prerequisite for the major is two term courses in History. Courses completed in fulfillment of the prerequisite may be applied toward the requirements of the major.

REQUIREMENTS OF THE MAJOR

Ten term courses in History are required, including prerequisites, and in addition to the senior essay.

Upon declaration, all History majors select either the global or the specialist track. The global track is designed for students seeking a broad understanding of major trends in the history of human societies throughout the world. The specialist track is for students seeking to focus in a particular geographic region, such as the United States, or in a thematic pathway, such as empires and colonialism. Majors may change tracks until the end of the course selection period in the second term of the junior year.

The global track requires one course in five of the six different geographic regions (see below). Students must also take two preindustrial courses, covering material before the year 1800, and two departmental seminars, identified by a “J” suffix to the course number (such as HIST 156J).

The specialist track requires at least five (and up to eight) courses in a particular geographic region or in a thematic pathway (see list below). Courses appropriate for each region and pathway are listed on the department website. Students must also take at least two courses outside their area of specialization, and their overall course work must include at least three geographic regions. Like students in the global track, students in the specialist track must take two preindustrial courses, covering material before the year 1800, and at least two departmental seminars, identified by a "J" suffix to the course number (e.g. HIST 156J). Students in the specialist track may design an area of specialization with the approval of a faculty adviser and the director of undergraduate studies (DUS).

Regions: Africa, Asia, Europe, Latin America, Middle East, and United States

Pathways: cultural history; empires and colonialism; environmental history; ideas and intellectuals; international and diplomatic history (formerly international history); politics, law, and government (formerly politics and law); race, gender, and sexuality; religion in context; science, technology, and medicine; social change and social movements; war and society; the world economy

Students in either track may count the same courses toward geographical, preindustrial, and seminar requirements. For instance, a departmental seminar on premodern Japan simultaneously fulfills the preindustrial, seminar, and Asia geographical requirements.

Departmental seminars All students who declare the History major are entitled to preregister for two departmental seminars (designated by a course number ending in J, such as HIST 156J). Many seminars are popular and fill up quickly. Students may use their preregistration privileges at any time after declaring the major, in their sophomore, junior, or senior years. Sophomores contemplating study abroad are urged to consider taking at least one seminar in the sophomore year. Residential College Seminars, study abroad courses, and courses in other departments that count toward the History major do not fulfill the departmental seminar requirement. Please note that the department offers seminars that are not J seminars and do not satisfy the departmental seminar requirements, although they can satisfy other requirements (preindustrial, region, pathway, etc.) Such non-J seminars are either a) cross-listed with other departments, or b) do not require the primary source research that departmental (J) seminars require. Students cannot preregister for non-J seminars during departmental preregistration.

Distinction in the major Students who receive an A or A– on the two-term senior essay and who receive the requisite grades in their remaining coursework are awarded Distinction in the Major. (See The Undergraduate Curriculum, Honors.) Students who do not complete the two-term senior essay are not eligible for Distinction.

Credit/D/Fail Departmental seminars cannot be taken Credit/D/Fail.

SENIOR REQUIREMENT

Students in the History major are not passive consumers of historical knowledge: they create original works of history themselves. As seniors, History majors complete a work of original research in close consultation with a faculty adviser. The range of acceptable topics and methodological approaches is wide. The aim is to take on study of a significant historical subject through research in accessible primary source materials.

Most students choose to write a two-term independent senior essay, for two course credits toward the major. The two-term essay is required to earn Distinction in the Major. A smaller number of students choose to write an independent one-term senior essay, for one course credit toward the major.

The one-term senior essay History majors may choose to write a one-term independent senior essay during the fall term under the guidance of a faculty adviser. However, students who choose the one-term option are not eligible for Distinction in the Major or history prizes. The one-term essay is a substantial research paper (roughly half the length of the two-term senior essay) based on primary sources, along with a bibliographic essay. Seniors receive course credit for their departmental essays by enrolling in HIST 497 during the fall of senior year. In rare circumstances, with permission of the adviser and senior essay director, a student enrolled in HIST 497 during the fall term may withdraw from the course in accordance with Yale College regulations on course withdrawal and enroll in HIST 497 during the spring term. Additional details about the senior essay are provided in the Senior Essay Handbook, available on the History website.

The two-term senior essay History majors seeking to earn Distinction in the Major must complete a two-term independent senior essay under the guidance of a faculty adviser. The typical senior essay is 40–50 pages (no more than 12,500 words), plus a bibliography and bibliographical essay. Seniors receive course credit for their departmental essays by enrolling in HIST 495 (first term of senior year) and HIST 496 (second term of senior year). The grade for the final essay, determined by an outside reader in consultation with the faculty adviser, is applied retroactively to both terms. Additional details about the senior essay are provided in the Senior Essay Handbook, available on the History website. History majors graduating in December may begin their two-term senior essay in the spring term and complete the senior essay during fall term.

Additional option for the senior essay Some students embark on the two-term essay but discover that their choice is not a good fit. Students who enroll in HIST 495 during the first term may opt out in consultation with their faculty adviser and the senior essay director. This decision must be made in accordance with Yale College regulations on course withdrawal. Instead, the student will enroll in HIST 497 in the spring term to write a one-term senior essay. Students who opt out will not be eligible for Distinction in the Major or History prizes. Additional details about the senior essay are provided in the Senior Essay Handbook, available on the History website.

ADVISING

All students who declare the History major are assigned an adviser from among the departmental faculty. The adviser is available throughout the year for consultation about courses and the major. Students in the global track are assigned an adviser from the general History faculty. Students in the specialist track are assigned an adviser in their area of specialization. At the beginning of each term, students majoring in History must have their schedule signed and approved by their departmental adviser or by the DUS. Students may request a specific adviser in consultation with the DUS, though the department cannot always accommodate such requests.

Course substitution History majors are permitted to include up to two courses taught outside the department toward fulfillment of the major, with the approval of the DUS. Nondepartmental courses may fulfill geographic, region/pathway, and preindustrial distribution requirements. They may not fulfill departmental seminar or senior requirements.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in History.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites 2 term courses in History

Number of courses 10 term courses (incl prereqs, not incl senior essay)

Distribution of courses *Both tracks*—2 courses in preindustrial hist as specified; 2 departmental sems; *Global track*—1 course in each of 6 geographical regions (Africa, Asia, Europe, Latin America, Middle East, U.S.); *Specialist track*—at least 5 courses in specific region or pathway; at least 2 courses outside region or pathway; overall course work must include 3 regions

Substitution permitted 1 or 2 nondepartmental courses approved by DUS

Senior requirement Two-term senior essay (HIST 495 and 496) or one-term senior essay (HIST 497)

FACULTY OF THE DEPARTMENT OF HISTORY

Professors Abbas Amanat, Sunil Amrith, Lauren Benton, Ned Blackhawk, David Blight, Edyta Bojanowska, Daniel Botsman, Paul Bushkovitch, Deborah Coen, Carolyn Dean, Fabian Drixler, Marcela Echeverri, Carlos Eire, David Engerman, Paul Freedman, Joanne Freeman, John Gaddis, Beverly Gage, Bruce Gordon, Greg Grandin, Valerie Hansen, Robert Harms, Matthew Jacobson, Gilbert Joseph, Paul Kennedy, Benedict Kiernan, Jennifer Klein, Regina Kunzel, Naomi Lamoreaux, Bentley Layton, Noel Lenski, Kathryn Lofton, Mary Lui, Daniel Magaziner, Joseph Manning, Ivan Marcus, John Merriman, Joanne Meyerowitz, Alan Mikhail, Samuel Moyn, Nicholas Parrillo, Peter Perdue, Mark Peterson, Stephen Pitti, Naomi Rogers, Paul Sabin, Stuart Schwartz, Timothy Snyder, David Sorkin, Harry Stout, John Warner, Arne Westad, John Witt, Keith Wrightson, Taisu Zhang

Associate Professors Paola Bertucci, Rohit De, Marcela Echeverri, Anne Eller, Crystal Feimster, Elizabeth Hinton, Andrew Johnston, Isaac Nakhimovsky, Joanna Radin, William Rankin, Edward Rugemer, Marci Shore, Eliyahu Stern, Jonathan Wyrzten

Assistant Professors Jennifer Allen, Sergei Antonov, Denise Ho, Jessica Lamont, Ben Machava, Nana Quarshie, Carolyn Roberts

Senior Lecturers Jay Gitlin, William Klein, Stuart Semmel, Rebecca Tannenbaum

Lecturers Sakena Abedin, Ria Chae, Ivano Dal Prete, Suzanne Gay, Maria Jordan, Tyler Kynn, George Levesque, Chitra Ramalingam, Terence Renaud, Miriam Rich

See visual roadmap of the requirements.

History of Art

Director of undergraduate studies: Jacqueline Jung
(jacqueline.jung@yale.edu); arthistory.yale.edu

Art history is the study of all forms of art, architecture, and visual culture in their social and historical contexts. The History of Art major can serve either as a general program in the humanities or as the groundwork for more specialized training. Unless otherwise indicated, all courses in History of Art are open to all students in Yale College.

COURSE NUMBERING

100-level courses are broad introductory lecture courses that address basic art history from a number of thematic perspectives. Prospective majors are encouraged, but not required, to take these courses as early in their course of study as possible. Under certain circumstances, students who have taken the Advanced Placement test in art history may earn acceleration credit and, in consultation with the director of undergraduate studies (DUS), may substitute an upper-level class for one required 100-level course.

Intermediate and advanced courses, numbered above 200, encompass more specialized surveys and themes in art history.

REQUIREMENTS OF THE MAJOR

Twelve term courses are required to complete the major: two introductory courses at the 100 level; four intermediate and advanced courses at the 200 and 300 levels; two seminars at the 400 level; a methods seminar, HSAR 401; two electives; and the senior essay, HSAR 499.

The major requires that the six intermediate and advanced courses must satisfy both a geographical and a chronological distribution requirement. These courses must be chosen from four geographical areas and four time periods. The geographical requirement is divided into five areas: Africa and the Pacific; the Americas; Asia and the Near East; Europe; and transregional. The chronological requirement is similarly divided into five segments: earliest times to 800; 800–1500; 1500–1800; 1800 to the present; and transchronological. A single course can fulfill both a geographical and a chronological requirement. Only classes originating in the History of Art department can fulfill the distribution requirements.

Junior seminar The methods seminar HSAR 401, *Critical Approaches to Art History*, is a wide-ranging introduction to the practices of the art historian and the history of the discipline. It is to be taken during the fall or spring term of the junior year.

Credit/D/Fail courses Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

The senior essay is a research paper written usually in one term in HSAR 499. Students choose their own topics, which may derive from research done in an earlier course. The essay is planned during the previous term in consultation with a qualified instructor and/or with the DUS. It is also possible to write a two-term senior essay, however

students wishing to do so must submit a petition to the DUS and the prospective adviser, normally by the first week after spring break of the junior year.

ADVISING

Electives may include courses from other departments if they have direct relevance to the major program of study. Approval of the DUS is required.

History of Art majors are urged to study foreign languages. Students considering graduate work should discuss with their advisers the appropriate language training for their field of interest.

Graduate courses Courses in the Graduate School are open to undergraduates with permission of the instructor and of the director of graduate studies. Course descriptions are available in the History of Art office in the Jeffrey H. Loria Center, 190 York St.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required HSAR 401

Distribution of courses 2 courses at 100 level; 6 courses numbered above 200, 2 of which must be 400-level seminars, fulfilling distribution requirements in 4 geographical and 4 chronological categories; 2 electives

Substitution permitted With DUS permission, electives from related depts

Senior requirement Senior essay (HSAR 499)

FACULTY OF THE DEPARTMENT OF HISTORY OF ART

Professors Carol Armstrong, Tim Barringer, Marisa Bass, Edward S. Cooke, Jr., Cecile Fromont, Milette Gaifman, Jacqueline Jung, Pamela Lee, Kishwar Rizvi, Nicola Suthor, Mimi Yiengpruksawan

Associate Professors Craig Buckley, Molly Brunson (*Slavic Languages and Literatures*), Jennifer Raab

Assistant Professors Allison Caplan, Joanna Fiduccia, Morgan Ng, Quincy Ngan

See the visual roadmap of the requirements.

History of Science, Medicine, and Public Health

Director of undergraduate studies: Ivano Dal Prete (ivano.dalprete@yale.edu), HQ 253; hshm.yale.edu

History of Science, Medicine, and Public Health is an interdisciplinary program that focuses on how different forms of knowledge and technology have been created in various times, places, and cultures, and how they have shaped the modern world. The major explores a wide range of questions. Is science universal, or does each culture have its own approach to trustworthy knowledge? What is the relationship between medical expertise, social and racial inequality, and everyday life? What is the nature of technology and its relationship to political, economic, and military power? Why do even the best public health campaigns have unintended consequences?

Course topics include the history of American and Western medicine and public health, medicine and race from the slave trade to the present, health and healing in Africa, scientific knowledge production in the global South, institutions of confinement, health activism, biotechnology, the history of the earth sciences, climate change and planetary catastrophe, the scientific revolution, scientific collections and material culture.

A major in History of Science, Medicine, and Public Health offers excellent preparation for a wide range of careers. Premedical students and others interested in health-related fields can combine preprofessional training with a broad humanistic education. The major also provides a solid foundation for any career at the intersection of the sciences, technology, and public life, including law, business, journalism, museum work, public policy, and government.

REQUIREMENTS OF THE MAJOR

The major in History of Science, Medicine, and Public Health requires twelve term courses (and twelve credits), including the two-term senior requirement. Students select a concentration of seven courses that guides them through an area of specialization. The seven concentration courses must include two courses in History of Science, Medicine, and Public Health; one seminar in History of Science, Medicine, and Public Health or in History; one full-credit science course; and three electives chosen from relevant courses in any department.

Concentrations The seven standard concentrations in the major are: Colonialism, Knowledge, and Power; Environment and Society; Gender, Reproduction, and the Body; Media, Information, and the Public; Medicine and Public Health; Minds and Brains; Science, Technology, and Society. Students may also design customized concentrations in consultation with the director of undergraduate studies (DUS). No later than the beginning of the junior year, students in the major must select a standard concentration or indicate that they wish to design their own.

Students in the Class of 2024 may earn their concentration in Global Health or any of the other seven concentrations.

See the Concentrations section for more information.

Electives Beyond the seven concentration courses, students must complete three additional electives in History of Science, Medicine, and Public Health. One of the electives must be a seminar, and one must be chosen from a concentration other than

the one selected for the major. All courses for the major are chosen in collaboration with the student's adviser.

Credit/D/Fail A maximum of one History of Science, Medicine, and Public Health course taken Credit/D/Fail before the fifth term of enrollment may be counted toward the requirements of the major.

SENIOR REQUIREMENT

By the end of reading period in the spring term of the junior year, students choose whether they will work toward a yearlong or a one-term senior project. Two-term senior projects are completed in HSHM 490, 491; one-term projects are completed in HSHM 492. Students who choose a one-term project must take an additional HSHM-listed course to complete the major. Only students who complete a yearlong senior project are eligible for Distinction in the Major.

HSHM 420, Senior Project Workshop, may be taken as an elective (for half-credit) in addition to HSHM 490 and 491, or HSHM 492. Note, enrolling in HSHM 420 will be in addition to the twelve, one-credit courses.

For both the one-term and two-term senior projects, students select a project adviser, propose a tentative topic and title, and submit a proposal to the senior project director. The final product of the senior requirement may be a written essay or an alternative project such as a film, exhibition, catalog, atlas, or historical data reconstruction. In the case of an alternative project, the student must identify a second reader in addition to the adviser before the project is approved by the senior project director. Either the adviser or the second reader must be a member of the faculty in History of Science, Medicine, and Public Health. A written component to the senior project must illustrate sources and the intellectual significance of the project. For more details about requirements and deadlines, majors should consult the HSHM Senior Project Handbook; copies are available from the senior project director and on the program website.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 courses for 12 credits (incl senior req and 10 full term course credits)

Distribution of courses 7 courses in concentration (incl 2 HSHM courses, 1 sem in HSHM or HIST, 1 science course, and 3 electives); 3 addtl HSHM electives, to incl 1 sem and 1 course outside major concentration

Senior requirement Two-term project (HSHM 490, 491), or one-term project (HSHM 492) and 1 addtl HSHM elective

The seven standard concentrations in the major are: Colonialism, Knowledge, and Power; Environment and Society; Gender, Reproduction, and the Body; Media, Information, and the Public; Medicine and Public Health; Minds and Brains; Science, Technology, and Society. Students may also design customized concentrations in consultation with the director of undergraduate studies (DUS). No later than the

beginning of the junior year, students in the major must select a standard concentration or indicate that they wish to design their own.

Students in the Class of 2024 may earn their concentration in Global Health or any of the other seven concentrations.

Students may find courses that fulfill the requirements of the concentrations in Yale Course Search by searching the "Any Course Information Attribute" dropdown search feature.

Colonialism, Knowledge, and Power (YC HSHM: Colonial Know & Power)

Environment and Society (YC HSHM: Environ & Society)

Gender, Reproduction, and the Body (YC HSHM: Gender, Reprod and Body)

Media, Information, and the Public (YC HSHM: Media Info & Public)

Medicine and Public Health (YC HSHM: Med & Public Health)

Minds and Brains (YC HSHM: Minds and Brains)

Science, Technology, and Society (YC HSHM: Sci, Tech & Society)

FACULTY ASSOCIATED WITH THE PROGRAM OF HISTORY OF SCIENCE, MEDICINE, AND PUBLIC HEALTH

Professors Deborah Coen, Naomi Rogers, John Warner

Associate Professors Paola Bertucci, Joanna Radin, William Rankin

Assistant Professors Nana Quarshie, Marco Ramos, Carolyn Roberts

Lecturers Sakena Abedin, Ivano Dal Prete, Ziv Eisenberg, Chitra Ramalingam

Affiliated Faculty Rene Almeling (*Sociology*), Toby Appel (*Yale University Library*), Melissa Grafe (*Yale University Library*), Dimitri Gutas (*Near Eastern Languages & Civilizations*), Jessica Helfand (*School of Art*), Marcia Inhorn (*Anthropology*), Kathryn James (*Yale University Library*), Amy Kapczynski (*Law School*), Gundula Kreuzer (*Music*), Amy Meyers (*Yale Center for British Art*), Alan Mikhail (*History*), Ayesha Ramachandran (*Comparative Literature*), Paul Sabin (*History*), Jason Schwartz (*School of Medicine*), Gordon Shepherd (*School of Medicine*), Frank Snowden (*History*), Rebecca Tannenbaum (*History*), R. John Williams (*English*)

See visual roadmap of the requirements.

Human Rights Studies Certificate

Program director: James Silk (humanrights.program@yale.edu), L39 SLB, 432-1729; humanrights.yale.edu

HUMAN RIGHTS STUDIES CERTIFICATE

The Human Rights Studies program presents human rights as a rich and interdisciplinary field of study. The program aims to provide students with the analytical, conceptual, and practical skills necessary for human rights study; connect students to affiliate faculty and peers; support student research projects and internships; and offer guidance for post-graduate careers and studies related to human rights.

Students apply to the program during the fall term of their sophomore year. To fulfill the requirements of the program, students complete a gateway lecture course (HMRT 100), four electives, and a capstone seminar (HMRT 400), which entails completion of a final capstone project. The gateway course equips students with the theoretical tools necessary for studying human rights, their evolution, and their justification. It introduces several contemporary issues such as gender disparities, racial discrimination, climate change, global health, human trafficking, refugees, world poverty, and humanitarian intervention. Students then select four electives, courses that students identify from current university offerings, that meet the program's criteria, and that are approved by the program director. In the capstone seminar, students explore selected advanced issues in international human rights law, theory and practice and complete a supervised capstone project that is informed by extracurricular experience and developed in consultation with the program director and other program advisers. Consistent with the program's commitment to the interdisciplinary study of human rights, students' capstone projects include artistic work, advocacy projects and other practical projects, as well as academic papers. Students are also expected to submit three reflections on Schell Center human rights events during the spring term of their sophomore year and one reflection each term thereafter. Additional information is available at the Human Rights program website.

Elective courses The number of courses in Yale College that touch on human rights is large, and we encourage a diversity of perspectives and methodologies across departments and disciplines. More than 200 courses have satisfied the elective requirement in the past. The formal criterion for a program elective is that a course must “engage with the language, ideas, and methods of human rights.” We ask that students distinguish this from courses that address issues that affect people's human rights, would be susceptible to a human rights analysis, or would simply be useful for understanding a human rights issue in which you are interested. Rather, the goal in assembling a group of electives is to enable a coherent study of human rights and to encourage students to focus on courses that will engage directly with and enhance their knowledge of and facility with the concepts, institutions, and development of human rights discourse.

No more than two course credits fulfilling the requirements of the Global Health Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of

more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

SUMMARY OF REQUIREMENTS

Prerequisite None

Number of courses 6 courses (incl senior req)

Specific courses required HMRT 100

Other requirements 4 electives and event reflections as described

Senior requirement HMRT 400

Humanities

Director of undergraduate studies: Paul Grimstad, (paul.grimstad@yale.edu) HQ, 320 York St.

The undergraduate program in Humanities offers both interdisciplinary breadth and intellectual depth, providing students the opportunity to integrate courses from across the humanistic disciplines into personally meaningful courses of study. Works of literature, music, history, philosophy, and the visual arts are brought into conversation with one another and with the history of ideas.

The major in Humanities asks students to begin with broad surveys of foundational works in at least two different cultural traditions, including at least one course on classical Western European texts. All majors take two specially commissioned core seminars, one on the question of what "modernity" is, another spending a whole term interpreting a single work (or small corpus of works) in great depth. Students then devise an area of concentration according to their interests and with the help of appropriate faculty members.

COURSES FOR NONMAJORS

Students in all classes can find options in the varied course offerings, from special seminars for first-year students to the Franke and Shulman Seminars for seniors. Many courses are open to nonmajors.

REQUIREMENTS OF THE MAJOR

Fourteen term courses are required for the major, including three "foundational works" surveys, two core seminars, one course in each of four areas of study in the humanities (which may include the Franke Seminar), four additional electives selected to complement the student's area of concentration and approved by the director of undergraduate studies (DUS), and a one- or two-term senior essay. Majors are also required to keep an intellectual journal and are strongly encouraged to enroll in at least one term course in literature in a foreign language.

Foundations Three broad surveys of foundational works in any cultural tradition are required, such as HIST 280, EALL 200, or RLST 189. One or two foundations courses must be in the classical tradition of Western Europe, such as Directed Studies, or ENGL 129 or CLCV 256.

Core seminars The major requires two core seminars, one in "Modernities" and one in "Interpretations." Core seminars typically are taught by a pair of faculty members from complementary disciplines. The two broad themes of the seminars remain consistent from year to year, but the material studied and the faculty members teaching change, allowing each class of students to explore the themes in different ways.

Areas of study in the humanities One course is required in each of four areas: literature; visual, musical, or dramatic arts; science in the humanities; and intellectual history and historical analysis. Courses may be drawn from any department or program in Yale College, with the approval of the DUS.

Intellectual journal Students are encouraged to log entries outlining particularly striking moments in their intellectual lives, whether in courses or outside of them, and

to keep track of questions they would like to pursue in their studies, including possible senior essay topics. Students submit a minimum of one journal entry each semester to the DUS.

Credit/D/Fail For students in the Class of 2025 and subsequent classes, a maximum of two courses taken Credit/D/Fail may count toward the major.

SENIOR REQUIREMENT

A one- or two-term senior essay is required (HUMS 491).

ADVISING

Students are expected to declare their intent to major in Humanities in a meeting with the DUS before their junior year.

UNIQUE TO THE MAJOR

The Franke Seminar Sponsored by the Whitney Humanities Center and designed to speak across disciplinary lines to broad public and intellectual issues, the Franke Seminar includes a series of coordinated public lectures. The seminars are for enrolled students; the lecture series is open to the Yale and local communities. Humanities majors may enroll in a Franke Seminar with permission of the DUS and the instructor.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses (incl senior essay)

Distribution of courses 3 foundations courses, as specified; 2 core sems, as specified; 1 course in each of 4 disciplinary areas; 4 electives in concentration

Senior requirement Senior essay (HUMS 491)

Intellectual journal A minimum of one journal entry every term

FACULTY ASSOCIATED WITH THE PROGRAM OF HUMANITIES

Professors Jeffrey Alexander (*Sociology*), R. Howard Bloch (*French*), Edyta Bojanowska (*Slavic Languages and Literatures*), Leslie Brisman (*English*), David Bromwich (*English*), Ardis Butterfield (*English*), Rüdiger Campe (*German*), Francesco Casetti (*Humanities*), Deborah Coen (*History of Science, Medicine, and Public Health, History*), Stephen Davis (*Religious Studies, History*), Carolyn Dean (*History, French*), Carlos Eire (*History, Religious Studies*), Paul Freedman (*History*), Kirk Freudenburg (*Classics*), Bryan Garsten (*Political Science*), Marie-Hélène Girard (*French*), Emily Greenwood (*Classics*), Frank Griffel (*Religious Studies*), Martin Hägglund (*Comparative Literature, Humanities*), Christine Hayes (*Religious Studies, Judaic Studies*), Alice Kaplan (*French*), Jonathan Kramnick (*English*), Anthony Kronman (*School of Law*), Tina Lu (*East Asian Languages and Literatures*), Ivan Marcus (*History, Religious Studies*), Stefanie Markovits (*English*), Giuseppe Mazzotta (*Italian*), Samuel Moyn (*History, School of Law*), Robert Nelson (*History of Art*), Paul North (*German*), John Durham Peters (*English, Film & Media Studies*), Brigitte Peucker (*German*), Pierre Saint-Amand (*French*), Maurice Samuels (*French*), Steven Smith (*Political Science, Philosophy*), Nicola Suthor (*History of Art*), Gary Tomlinson (*Music, Humanities*), Shawkat Toorawa (*Near Eastern Languages and Civilizations*), Katie Trumpener (*Comparative Literature*), Jing Tsu (*East Asian Languages*)

and Literatures), Miroslav Volf (*Divinity School*), Kirk Wetters (*German*), Christian Wiman (*Institute of Sacred Music*), Ruth Yeazell (*English*)

Associate Professors Marisa Bass (*History of Art*), Paola Bertucci (*History, History of Science, Medicine, and Public Health*), Molly Brunson (*Slavic Languages and Literatures*), Robyn Creswell (*Comparative Literature*), Toni Dorfman (*Adjunct*) (*Theater Studies*), Emily Erikson (*Sociology*), Marta Figlerowicz (*Comparative Literature, English*), Moira Fradinger (*Comparative Literature*), Milette Gaifman (*History of Art, Classics*), Mick Hunter (*East Asian Languages and Literatures*), Jacqueline Jung (*History of Art*), Brian Kane (*Music*), Noreen Khawaja (*Religious Studies*), Pauline LeVen (*Classics*), Isaac Nakhimovsky (*History*), Joanna Radin (*History of Science, Medicine, and Public Health, History*), Ayesha Ramachandran (*Comparative Literature*), Marci Shore (*History*)

Assistant Professors Lucas Bender (*East Asian Languages and Literatures, Humanities*), Marijeta Bozovic (*Slavic Languages and Literatures*), Thomas C. Connolly (*French*), Jessica Lamont (*Classics*), Joseph North (*English*), Giulia Oskian (*Political Science*), Jessica Peritz (*Music*), Christiana Purdy Moudarres (*Italian*), Maryam Sanjabi (*French*), Katrin Truestedt (*German*)

Senior Lecturers Peter Cole (*Judaic Studies*), William Klein (*Humanities*), Pauline Lin (*East Asian Languages and Literatures*), Stuart Semmel (*History, Humanities*), Kathryn Slanski (*Humanities, Near Eastern Languages and Civilizations*), Norma Thompson (*Humanities*)

Lecturers Benjamin Barasch (*Humanities*), Brianne Bilsky (*Humanities*), Dane Collins, Matthew Croasmun (*Divinity School*), Joseph Gordon (*English*), Paul Grimstad (*Humanities*), Alfred Guy (*English*), Katja Lindskog (*English*), Ryan McAnnally-Linz (*Divinity School*), Terence Renaud (*Humanities*), Karin Roffman (*Humanities, English*), Daniel Schillinger (*Humanities*), George Syrimis (*Hellenic Studies*), Adam Van Doren (*School of Art*)

Senior Lector Constantine Muravnik (*Slavic Languages and Literatures*)

Lector Simona Lorenzini (*Italian*)

See visual roadmap of the requirements.

Islamic Studies Certificate

Certificate director: Supriya Gandhi (supriya.gandhi@yale.edu)

This Certificate encompasses the study of Muslim and Islamic artistic, cultural, historical, intellectual, linguistic, literary, philosophical, political, religious, sociological and scientific presence, and impact on human society over the past one and a half millennia. It helps Yale College students curate their courses relating to Muslims and to Islam. It will be of interest to non-humanities majors with a strong interest in Islamic Studies; social science and humanities majors wishing to complement their existing interests with coursework in Islamic Studies; and self-identifying Muslim students for whom such a certificate offers an ideal way academically to explore their heritage.

REQUIREMENTS

Students must successfully complete five course credits, of which no more than two may represent the same area of study. Currently, the four areas of study, with their searchable attribute are:

- study of society (YC ISLM: Islamic Society)
- history of art, architecture, or literature (YC ISLM: Islamic Art, Arch, Lit)
- a historical period (YC ISLM: Islamic History)
- religious thought (YC ISLM: Islamic Religion)

Courses are drawn from a list of approved courses. The list is posted each semester on the Islamic Studies Certificate website. Students may also use the attributes listed above to search for approved courses on Yale Course Search. Other courses may be approved by permission of the certificate director.

Courses must be distributed as follows:

- 1 course in the study of society (Islamic Society)
- 1 course in the history of art, architecture, or literature (Islamic Art, Arch, Lit)
- 1 course in religion or religious thought (Islamic Religion)
- 1 course in history or a historical period (Islamic History)
- 1 elective from any of the four content areas

Graduate and professional school courses may count toward the Certificate; language courses and non-Yale courses may not count toward the Certificate.

In addition to the course requirements, each student must attend three lectures on topics relating to Islamic Studies and submit a brief write-up. Notice of these events can be found on the Islamic Studies Certificate website.

No more than two course credits fulfilling the requirements of the Islamic Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Completion Procedure and Advising

Students should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the form, and approval from the Certificate Director, is necessary to ensure that the earned Certificate appears on student transcripts.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits

Distribution of courses 1 course in each of the four content areas; 1 elective from any of the four content areas

Additional requirements attendance of 3 Islamic Studies lectures, and submission of a 1–2 page write-up for each

Italian Studies

Director of undergraduate studies: Simona Lorenzini (simona.lorenzini@yale.edu), 320 York St., 432-0508; language program director: Anna Iacovella (anna.iacovella@yale.edu), 320 York St., 432-8299; italian.yale.edu

The major in Italian Studies explores Italy's vital role in the formation of Western thought and culture. The core language courses provide students with the opportunity to acquire an in-depth linguistic proficiency, together with a solid literary and historical background in the language. In its interdisciplinary focus, the major offers a variety of advanced courses in literature, cinema, history, translation practice, art, and gender studies. Central to the major is the conviction that delving into another language and culture, in addition to the intellectual enrichment it affords, raises students' awareness of what is distinctive about their own cultural identity.

Italian makes an excellent second major as a complement to several extradepartmental disciplines, among them History of Art, Comparative Literature, Economics, Film and Media Studies, History, Political Science, and Architecture.

Studying and appreciating a foreign language, literature, and culture offer students a useful and challenging option in their university education. In particular, the Italian Studies major prepares for careers in international business, translation, journalism, economics, art, media, film, fashion, design, education, and tourism.

PREREQUISITE

Candidates for the major should have completed a course in Italian at the level of ITAL 130 (L3) or should have received credit for equivalent work by the end of their sophomore year. Exceptions may be made in the case of outstanding students who have not satisfied this requirement.

PLACEMENT PROCEDURES

All students who have not taken Italian at Yale are expected to take the departmental placement test, except for students who have no previous knowledge of Italian. The placement examination is completed online during the summer; see the *Calendar for the Opening Days of College* and the department website for details.

REQUIREMENTS OF THE MAJOR

The major consists of eleven term courses beyond the prerequisite. Eight term courses in the Italian Studies department numbered 140 or above (including graduate courses) are required, at least five of which must be conducted in Italian. The courses in the department must include ITAL 140 or equivalent, either ITAL 150 or 151, a survey course on Italian literature (ITAL 162 or 172), and a course on Dante's *Divine Comedy* (ITAL 310 or equivalent). The aim of these foundational courses is to provide students with both a broad acquaintance with the major works of Italian Studies and a more detailed knowledge of specific periods in Italian literature and media. No more than three Italian department courses taught in English may count toward the major. Students intending to major in Italian Studies should consult the director of undergraduate studies (DUS).

In completing their programs, students are required to elect two courses in other languages and literatures, history of art, history, linguistics, philosophy, or media that

are related to their field of study and approved by the DUS. Any graduate course in another national literature or in linguistics may be substituted for one of these two courses.

SENIOR REQUIREMENT

During their senior year, all students majoring in Italian Studies are required to meet with the DUS at least twice per month. In the fall or spring of the senior year, all majors must present a departmental essay written in Italian and completed under the direction of a faculty adviser in ITAL 491. The essay should demonstrate careful reading and research on a topic approved by the adviser in consultation with the DUS. A recommended length for the essay is thirty pages, plus bibliography. The student and the advisor will select and invite a second faculty reader, who will receive the final version of the thesis by the established deadline. While prospectus and draft deadlines are determined by the adviser, the student must submit the final version no later than 10 days before the last day of classes, in the Fall or Spring. The senior requirement culminates in a meeting with department faculty to discuss the thesis and the student's overall experience of study in the major.

ADVISING

The department's course offerings vary greatly from year to year. Students interested in planning coursework in Italian that extends beyond the current academic year should consult the DUS.

Related majors In addition to the major in Italian Studies, the department supports the applications of qualified students who wish to pursue a course in Italian studies under the provisions of a Special Divisional Major. Majors can devise a broad program in social, political, economic, or intellectual history as related to and reflected in Italian literature, or pursue special interests in architecture, film, art, philosophy, music, history, linguistics, theater, political theory, or other fields especially well-suited for examination from the perspective of Italian cultural history. Majors in Italian Studies must design their programs in close consultation with the DUS and seek the guidance of an additional member of the department whose interests closely coincide with the proposed program of study. For further information, see Special Divisional Majors.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Italian.

STUDY ABROAD

For information about the Year or Term Abroad program, see Academic Regulations, section K, Special Academic Programs, "Year or Term Abroad."

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite ITAL 130 or equivalent

Number of courses 11 term courses beyond prereq (incl senior req)

Specific courses required ITAL 140 or equivalent; ITAL 150 or 151; ITAL 162 or 172; ITAL 310 or equivalent

Distribution of courses 8 term courses in Italian Studies dept numbered 140 or above, at least 5 of these conducted in Italian; 2 elective courses in other langs and lits, hist of art, hist, ling, phil, or media approved by DUS

Substitution permitted Any grad course with DUS permission

Senior requirement Senior essay in Italian (ITAL 491) and a meeting with departmental faculty members at the end of the final semester.

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Italian Department offers a Certificate of Advanced Language Study in Italian. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study is listed on the student's official transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L₄ level in Italian, at least three of which must be Yale courses designated as L₅. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L₅ course, conducted in Italian, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in Italian. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The adviser may also approve the substitution of up to two credits earned during study abroad and taught in Italian to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students should complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study.

FACULTY OF THE DEPARTMENT OF ITALIAN

Professors Millicent Marcus, Jane Tylus (*Chair*)

Assistant Professor Serena Bassi, Alessandro Giammei, Christiana Purdy Moudarres

Lecturer Alejandro Cuadrado

Senior Lectors Michael Farina, Anna Iacovella, Simona Lorenzini

Lector Deborah Pellegrino

Professor in the Practice Amara Lakhous

Affiliated Faculty Paola Bertucci (*History of Science, Medicine, and Public Health*), Howard Bloch (*French*), Jessica Brantley (*English*), Francesco Casetti (*Film and Media Studies*), Joanna Fiduccia (*History of Art*), Jacqueline Jung (*History of Art*), Laurence Kanter (*Yale University Art Gallery*), Gundula Kreuzer (*Music*), Morgan Ng (*History of Art*), Jessica Peritz (*Music*), Ayesha Ramachandran (*Comparative Literature*), Kevin Repp (*Beinecke Library Curator, Modern European Books and Manuscripts*), Lucia Rubinelli (*Political Science*), David Quint (*English and Comparative Literature*), Pierre Saint-Amand (*French*), Gary Tomlinson (*Music*)

See visual roadmap of the requirements.

Jewish Studies

Director of undergraduate studies: Hannan Hever; HQ 341; hannan.hever@yale.edu

Jewish Studies enables students to develop a broad knowledge of the history, religion, literature, philosophy, languages, and politics of the Jews. Jewish society, texts, ideologies, material cultures, and institutions are studied from a comparative perspective in the context of histories, cultures, and intellectual traditions among which Jews have lived throughout the ages. As an interdisciplinary program, Jewish Studies employs historical, literary, political, social, and philosophical methods of analysis.

The Jewish Studies major—especially as a second major with Economics, Political Science, Comparative Literature, English, Philosophy, or History—offers a broad liberal arts background combined with intensive preparation in the historical and religious experience of Jewish culture from antiquity to contemporary times. The major epochs of Jewish history are the Persian and Hellenistic, classical, medieval, early modern, and modern periods.

Students considering the major in Judaic Studies should contact the director of undergraduate studies (DUS) as early as possible.

REQUIREMENTS OF THE MAJOR

The major in Jewish Studies requires thirteen term courses, including three courses selected from a set of core requirements, a language or literature requirement, three courses selected from each of two areas of concentration, and the senior requirement.

Core requirements Each student must elect at least three from the following: (1) a course in Hebrew Bible, such as JDST 110; (2) a course in rabbinic literature or ancient Judaism, such as JDST 235; (3) JDST 200; (4) JDST 201; (5) a course in Jewish thought, such as JDST 281 or JDST 293; (6) a survey course in Hebrew and Jewish literature.

Language or literature requirements Students must complete either HEBR 110 and 120 or two courses in Hebrew literature in translation. Up to three Hebrew language courses may be counted toward the requirements of the major.

Areas of concentration Students must select two of the following areas of concentration: ancient Israel/Hebrew Bible; Judaism and Jewish history of Second Temple and Talmudic times; Jewish history and civilization of medieval and Renaissance times; modern Jewish history and civilization; Jewish/Hebrew literature (which requires the study of literature in Hebrew); and Jewish thought. With the approval of the DUS, students may design their own areas of concentration.

In each of the two areas of concentration, students choose three courses in consultation with the DUS. These are expected to comprise one introductory course; one seminar taken in the junior year, and one course requiring a final research paper. One relevant course should be in an area outside Judaic Studies, such as a course relating to the larger historical, literary, or philosophical context if the concentration is in a historical period, or a course in the theory or practice of literature if the concentration is in Jewish/Hebrew literature.

SENIOR REQUIREMENT

Students are required either to complete a two-term senior essay in JDST 491 and 492 related to both areas of concentration, or to complete a one-term senior essay in JDST 491 or 492 related to one area of concentration and an additional seminar related to the other. The senior essay may build on research conducted for one or both of the student's junior seminar papers.

STUDY ABROAD

Students majoring in Judaic Studies should be aware of the numerous opportunities for study abroad. Those interested in research and language-study opportunities in the Middle East, Europe, and South America should consult the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 term courses (incl senior req)

Distribution of courses 3 core courses as indicated; HEBR 110 and 120, or 2 courses in Hebrew lit in translation; 2 areas of concentration, with 3 courses in each for a total of 6 concentration courses

Senior requirement Two-term senior essay (JDST 491, 492) or one-term senior essay (JDST 491 or 492) and additional seminar

FACULTY ASSOCIATED WITH THE PROGRAM OF JUDAIC STUDIES

Professors Joel Baden (*Divinity School*), Leslie Brisman (*English*), Steven Fraade (*Religious Studies*), Paul Franks (*Philosophy*), Christine Hayes (*Religious Studies*), Hannan Hever (*Comparative Literature*), Nancy Levene (*Religious Studies*), Ivan Marcus (*History, Religious Studies*), Samuel Moyn (*Law*), Steven Smith (*Political Science, Philosophy*), David Sorkin (*History*), Elli Stern (*Chair*), (*Religious Studies*), Katie Trumpener (*Comparative Literature, English*), Laura Wexler (*Women's, Gender, & Sexuality Studies, American Studies*), Robert Wilson (*Religious Studies*)

Associate Professor Marci Shore (*History*)

Senior Lecturer Peter Cole (*Comparative Literature*)

Lecturer Margaret Olin (*Divinity School, History of Art, Religious Studies*)

Senior Lecturer II Shiri Goren

Senior Lectors Dina Roginsky, Orit Yeret

Lector Joshua Price

Latin American Studies

Director of undergraduate studies: Ana De La O (ana.delao@yale.edu), Room 327, 115 Prospect St.; (203) 432-5234; <https://macmillan.yale.edu/academic-programs>

The major in Latin American Studies is designed to further understanding of the societies and cultures of Latin America as viewed from regional and global perspectives. The Latin American Studies major builds on a foundation of language and literature, history, history of art, theater studies, humanities, and the social sciences; its faculty is drawn from many departments and professional schools of the University.

The major in Latin American Studies is interdisciplinary. With two goals in mind—intellectual coherence and individual growth—the student proposes a course of study that must satisfy the requirements listed below. The proposed course of study must be approved by the director of undergraduate studies (DUS). Though all students choose courses in both the humanities and the social sciences, they are expected to concentrate on one or the other.

Students in the Class of 2024 and 2025 With approval from the director of undergraduate studies (DUS), the following changes to the prerequisites and the requirements of the major may be fulfilled by students who declared their major under previous requirements.

Students in the Class of 2026 and subsequent classes follow the prerequisite and major requirements as indicated.

PREREQUISITES

Prerequisite to the major is knowledge of either Spanish or Portuguese at the L3 level or higher before declaring the major. Equivalent placement determined by the placement examination also fulfills the prerequisite.

REQUIREMENTS OF THE MAJOR

The major itself requires twelve term courses: one introductory course approved by the DUS; seven courses related to Latin America from departmental offerings; three additional electives; and the senior essay LAST 491 or senior project LAST 492. One of the ten elective courses must be taught in Spanish or Portuguese at the L5 level.

The seven Latin American content courses should include courses from the following categories: two courses in the social sciences (anthropology, economics, or political science); two courses in history; two courses in Spanish American or Brazilian literatures beyond the language requirement; one course in art, architecture, film and media studies, music, or theater studies. Students wishing to count toward the major courses that do not appear in the program's course offerings, but have at least a third of syllabus' material related to the region, should consult with the DUS.

Students must enroll in three seminars or upper-level courses during their junior and senior years. Elective seminars must be approved by the DUS.

SENIOR REQUIREMENT

The senior requirement is a research paper written usually in one term in LAST 491 or a senior project in LAST 492.

For the senior essay, students choose their own topics, which may derive from research done in an earlier course. The essay is planned in advance in consultation with a qualified adviser and a second reader. In preparing the senior essay, Latin American Studies majors may undertake field research in Latin America. Students are encouraged to apply for summer travel grants through the Council on Latin American and Iberian Studies to conduct field research for their senior thesis. The Albert Bildner Travel Prize is awarded to an outstanding junior who submits an application in Spanish or Portuguese in addition to the English application essay. Information about these and other grants is available on Yale's Student Grants & Fellowships website.

For the senior project, students formulate and execute a project under the supervision of a faculty adviser in the fall or spring term. Students work on projects of their own choice. Proposals for senior projects are submitted to the adviser and the director of undergraduate studies by the end of the term preceding the last resident term. An interim project review takes place by the fifth week of the term the project is developed. Permission to complete the senior project can be withdrawn if satisfactory progress has not been made. An exhibition of selected work done in the project is expected of each student.

ADVISING

A list of courses intended as a guide to students in preparing their programs is available at the office of the DUS and on the Council on Latin American and Iberian Studies website. Qualified students may also elect pertinent courses in the Graduate School and in some of the professional schools with permission of the director of graduate studies or professional school registrar and the DUS.

STUDY ABROAD

Students are strongly encouraged to take advantage of study abroad opportunities during summers or through the Year or Term Abroad program. For more information, see Academic Regulations, section K, Special Academic Programs, "Year or Term Abroad."

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites Spanish or Portuguese at L3 level or higher; or equivalent score on placement exam

Number of courses 12 courses beyond prereqs (incl senior requirement)

Distribution of courses 1 intro course; 7 courses with Latin American content in specified fields as indicated; 3 addtl electives; 3 of the courses must be seminars or upper-level courses taken in junior and senior years; 1 of the courses must be taught in Spanish or Portuguese at L5 level; all approved by DUS

Senior requirement Senior essay (LAST 491) or senior project (LAST 492)

FACULTY ASSOCIATED WITH THE PROGRAM OF LATIN AMERICAN STUDIES

Professors Rolena Adorno (*Spanish & Portuguese*), Ned Blackhawk (*History, American Studies*), Richard Burger (*Anthropology*), Hazel Carby (*African American Studies, American Studies*), Carlos Eire (*History, Religious Studies*), Eduardo Fernandez-Duque (*Anthropology*), Paul Freedman (*History*), Aníbal González (*Spanish & Portuguese*),

Roberto González Echevarría (*Spanish & Portuguese*), K. David Jackson (*Spanish & Portuguese*), Gilbert Joseph (*History*), Stathis Kalyvas (*Political Science*), Daniel Markovits (*Law School*), Mary Miller (*History of Art*), Stephen Pitti (*History*), Susan Rose-Ackerman (*Law School, Political Science*), Alicia Schmidt Camacho (*American Studies*), Stuart Schwartz (*History*), Susan Stokes (*Political Science*), Robert Thompson (*History of Art*), Noël Valis (*Spanish & Portuguese*), Frederick Wherry (*Sociology*), Elisabeth Wood (*Political Science*)

Associate Professors Robert Bailis (*Forestry & Environmental Studies*), Susan Byrne (*Spanish & Portuguese*), Rodrigo Canales (*School of Management*), Ana De La O (*Political Science*), Moira Fradinger (*Comparative Literature*)

Assistant Professors Vanessa Agard-Jones (*Women's, Gender, & Sexuality Studies*), Ryan Bennett (*Linguistics*), Oswaldo Chinchilla (*Anthropology*), Marcela Echeverri (*History*), Anne Eller (*History*), Leslie Harkema (*Spanish & Portuguese*), Seth Jacobowitz (*East Asian Languages & Literatures*), Erica James (*History of Art, African American Studies*), Albert Laguna (*American Studies, Ethnicity, Race, & Migration*), Dixia Ramirez (*American Studies, Ethnicity, Race, & Migration*)

Senior Lectors II Margherita Tortora, Sonia Valle

Senior Lectors Sybil Alexandrov, Marta Almeida, María Pilar Asensio-Manrique, Mercedes Carreras, Ame Cividanes, Sebastián Díaz, María de la Paz García, María Jordán, Rosamaría León, Juliana Ramos-Ruano, Lissette Reymundi, Lourdes Sabé-Colom, Bárbara Saffile, Terry Seymour

Lector Selma Vital

Linguistics

Director of undergraduate studies: Claire Bower (claire.bower@yale.edu); ling.yale.edu

Linguistics is the scientific study of language. The major in Linguistics offers a program of study leading toward an understanding of phonological, grammatical, and semantic structure and of various approaches to descriptive, experimental, and historical linguistics. Majors may concentrate on theoretical, experimental, or computational linguistics, on various aspects of comparative grammar, or on a particular family of languages. Interested students should consult the director of undergraduate studies (DUS).

COURSES FOR NONMAJORS AND MAJORS

Students with no previous background in linguistics are encouraged to approach the field by taking a 100-level course.

REQUIREMENTS OF THE MAJOR

The major requires twelve term courses in linguistics and related areas, distributed as follows:

1. Breadth requirement (four courses). All majors must take a course in each of the core areas of phonology (LING 232) and syntax (LING 253). In addition, at least one course must be taken in any two of the six remaining core areas of linguistics: phonetics, morphology, semantics/pragmatics, computational linguistics, language and mind/brain, and historical linguistics.
2. Depth requirement (two courses). In one of the eight core areas of linguistics, students must take two additional courses beyond the introductory level.
3. Electives (four courses). Four additional courses relating to linguistics are required, at least one of which must be at the 200 level or above. Electives may be chosen from courses offered by the Linguistics department or, with approval of the DUS, from related courses in programs such as Anthropology, Classics, Cognitive Science, Computer Science, English, Philosophy, Psychology, or foreign languages. No more than two foreign language courses can count toward the major without specific DUS approval.
4. Senior research requirement (one course). LING 490, Research Methods in Linguistics, is required and is usually taken in the fall term of the senior year.

Credit/D/Fail Courses taken Credit/D/Fail, Pass/Fail, or any scale other than the standard letter-grade scale, may not be counted toward the requirements of the major without specific DUS approval.

SENIOR REQUIREMENT

Senior requirement (one course). Students attend a research colloquium and write a senior essay in LING 491 during the spring term of the senior year.

ADVISING

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L,

Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Linguistics.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific courses required LING 232, 253, 490

Distribution of courses 1 course each in 2 addtl core areas (breadth req), as specified; 2 addtl courses beyond intro level in 1 core area (depth req); 4 electives, at least 1 at the 200 level or above

Substitution permitted Electives from related programs with DUS approval

Senior requirement LING 491

FACULTY OF THE DEPARTMENT OF LINGUISTICS

Professors Claire Bower, Veneeta Dayal, Robert Frank, Laurence Horn (*Emeritus*), †Frank Keil, †Joshua Knobe, †Jason Stanley, †Zoltán Szabó, Petronella Van Deusen-Scholl (*Adjunct*), Raffaella Zanuttini (*Chair*)

Associate Professors Maria Piñango, Kenneth Pugh (*Adjunct*), Jason Shaw

Assistant Professors Natalie Weber, Jim Wood

Lector Julia Silvestri

Lecturers Roslyn Burns, Chelsea Sanker

†A joint appointment with primary affiliation in another department.

See visual roadmap of the requirements.

Mathematics

See also Applied Mathematics

Director of undergraduate studies: Andrew Neitzke, (andrew.neitzke@yale.edu) DL 425; associate director of undergraduate studies: Miki Havlickova, DL 446; contact email: math.dus@yale.edu; Math DUS website; Math department website

Mathematics has many aspects: it is the language and tool of the sciences, a cultural phenomenon with a rich historical tradition, and a model of abstract reasoning. The course offerings and the major in Mathematics reflect these multiple facets. The Mathematics major provides a broad education in various areas of mathematics in a program flexible enough to accommodate many ranges of interest.

PREREQUISITE

The prerequisite for both the B.A and B.S. degree programs is single variable calculus, through the level of MATH 115 or equivalent (score of 4 or 5 on the AP Calculus BC exam).

CALCULUS PLACEMENT PROCEDURES

The department offers a three-term sequence in calculus, MATH 112, 115, and 120. Students who have not taken calculus at Yale and who wish to enroll in calculus must take the mathematics online placement examination. Detailed information is available on the Math first-year student resources website. A calculus advising session will be held prior to registration, to answer student questions about placement.

MATH 112 covers differential calculus, and assumes mastery of high school algebra, geometry, and trigonometry. Enrolling students are expected to know the basic definitions of the trigonometric functions, inverse functions, factoring quadratic polynomials, and elementary area and volume formulas of plane and solid geometry. Students who could benefit from a review of precalculus are encouraged to consider MATH 110 and 111 in place of MATH 112.

The next course in the calculus sequence is MATH 115, which covers integral calculus, including sequences and series. It assumes mastery of the content of MATH 112 or equivalent (AP Calculus AB exam).

MATH 120 covers multivariable calculus, and assumes mastery of the material in MATH 115 or equivalent (AP Calculus BC exam).

INTRODUCTORY SEQUENCE FOR THE MATHEMATICS MAJOR

Students wishing to pursue study of mathematics typically enroll in MATH 225 (linear algebra and introduction to proofs), followed by MATH 255 (real analysis).

Most students complete multivariable calculus before enrolling in MATH 225, however, prospective mathematics majors and students with interest in abstract mathematics may consider enrolling in MATH 225 directly after MATH 115 or equivalent, and complete their vector analysis/multivariable calculus requirement with MATH 302.

Students with a strong mathematical background that includes exposure to mathematical proofs are encouraged to consider the intensive version of the introductory sequence, MATH 226 and MATH 256.

Incoming students are encouraged to visit the Math first-year student resources website for advice about choosing their mathematics courses.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree program consists of ten term courses in Mathematics numbered 222 or higher, including the senior requirement (MATH 475 or 480 or 481); excluding, however, MATH 470. To acquire both depth and breadth in the field, students are required to take at least two term courses in each of three of the following five categories: analysis; algebra and number theory; statistics and applied mathematics; geometry and topology; and logic and foundations. Students must also take at least one course in at least two of the three core areas: real analysis, algebra, and complex analysis. Taking courses from all three core areas is strongly recommended. The categories and core areas to which each course belongs are indicated in the course listings.

Introductory sequence requirement for students in the Class of 2025 and beyond

Each student is expected to complete Linear algebra (MATH 225 or 226), Real analysis (MATH 255 or MATH 256), and Vector analysis or Multivariable calculus (MATH 302 or 120). MATH 222 is not recommended as a substitute for MATH 225 or 226, as it does not provide an introduction to proof writing, which is an essential skill for completing upper level mathematics courses.

Students in the Class of 2024 who have not yet completed their introductory requirement (MATH 230 and 231, or 120 and 225 and 250) are encouraged to visit the Math curriculum revision website for detailed information about transitioning to the new introductory sequences.

B.S. degree program The B.S. degree program consists of twelve term courses and follows the same requirements as for the B.A. degree, with the addition at least two advanced term courses in the physical sciences, such as ASTR 418, 430, CHEM 333, 470, or PHYS 401, 402, 410, 412, 420, 430, 440, 441. Such courses require the approval of the director of undergraduate studies (DUS); written approval is advised.

Distinction in the major To be eligible for Distinction in the Major, a student must have completed at least one course from each of the three core areas.

The intensive major Candidates for a degree with an intensive major in Mathematics must take courses in all three of the core areas: real analysis; algebra; and complex analysis. Intensive majors are also expected to include at least two graduate term courses in the Mathematics department, or equivalent independent study, among their required ten mathematics courses. Familiarity with the material of the following courses is prerequisite to graduate courses in each category: *algebra*: MATH 350 and MATH 370; *analysis*: MATH 305, 310; *algebraic topology*: MATH 350, 430; *logic and foundations*: MATH 270.

Substitutions With permission of the Math DUS, up to two courses from other departments may be counted towards the required courses. For a list of courses that are typically approved, visit the FAQ page on the Math department website.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

During the senior year students majoring in Mathematics normally take the senior seminar (MATH 480 or MATH 481). Alternatively, with the consent of the DUS, students may write a senior essay in MATH 475 under the guidance of a faculty member, and give an oral report to the department. Students wishing to write a senior essay should consult the DUS at least six weeks prior to enrolling in MATH 475, and are encouraged to pursue independent study opportunities prior to their senior year, for example through the Mathematics directed reading program or through summer research programs.

ADVISING

Students interested in pursuing further study in pure mathematics should include MATH 302, 305, 310, 350, 370, and 430 in their programs, and should consider taking one or more graduate-level courses. Students interested in applications of mathematics should include MATH 302, 310, 350, and a selection of courses from MATH 241, 242, 244, 246, 251, 260, and CPSC 440.

Courses related to mathematics Each Mathematics major is urged to acquire additional familiarity with the uses of mathematics by taking courses in Applied Mathematics, Computer Science, Engineering and Applied Science, Economics, Philosophy, Physics, Statistics & Data Science, or other departments. In some instances a limited number of such courses may be counted among the ten courses required for the major in Mathematics, with the approval of the DUS.

Graduate work Each year the Mathematics and Statistics & Data Science departments offer a large number of graduate courses, some of which are accessible to undergraduates with advanced preparation in mathematics.

Combined B.S./M.S. degree program Students who, by the end of their senior year, complete the requirements of the department for the M.S. in Mathematics are eligible to receive this degree at their Senior Commencement. Required are: (1) eight additional term courses numbered 500 or higher, most of which must be completed with grades of B or better; (2) passing a written qualifying examination of the student's choice from analysis, algebra, or topology.

The master's program is in no sense a substitute for the B.S. program; rather, it is designed to accommodate exceptional students who, by means of accelerated or independent study, can satisfy the department as to their command of the content of the normal undergraduate program by the end of the junior year. Candidates must contact the Mathematics DUS at least two weeks prior to the last day of classes of their fifth term at Yale College. Minimum eligibility criteria include at least seventy-five percent of A/A- grades within mathematics as well as seventy-five percent of A/A- grades overall. For more information on mathematics requirements, please see the B.S./M.S. section of the Math major FAQ. For more information on Yale College requirements for the program, see Academic Regulations, Section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees."

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite Single-variable calculus through MATH 115 or equivalent

Number of courses *B.A.* – 10 term courses numbered 222 or higher (incl senior essay), excludes MATH 470; *B.S.* – 12 term courses numbered 222 or higher (incl senior essay), excludes MATH 470

Specific courses required *B.A. and B.S.* – MATH 225 or MATH 226; MATH 255 or MATH 256; MATH 302 or MATH 120

Distribution of courses *B.A. and B.S.* – 2 courses in each of 3 categories chosen from: analysis; algebra and number theory; stat and applied math; geometry and topology; logic and foundations; 1 course from 2 of 3 core areas chosen from: real analysis; algebra; and complex analysis; *B.S.* – at least two adv term courses in the physical sciences as approved by DUS

Substitution permitted With DUS permission, up to 2 courses from other depts, as specified

Intensive major Courses in all 3 core areas; 2 MATH grad courses or equivalent independent study counted among the required courses

Senior requirement Senior sem (MATH 480 or MATH 481) or, with DUS permission, senior essay (MATH 475) and oral report

FACULTY OF THE DEPARTMENT OF MATHEMATICS

Professors Richard Beals (*Emeritus*), Jeffrey Brock, Andrew Casson (*Emeritus*), Ronald Coifman, Igor Frenkel, Howard Garland (*Emeritus*), Anna Gilbert, Alexander Goncharov, Roger Howe (*Emeritus*), Peter Jones, Richard Kenyon, Ivan Losev, Gregory Margulis, Yair Minsky, Vincent Moncrief, Andrew Neitzke, Hee Oh, †Nicholas Read, Vladimir Rokhlin, Wilhelm Schlag, George Seligman (*Emeritus*), †Daniel Spielman, Van Vu, Lu Wang, †John S. Wettlaufer, Gregg Zuckerman (*Emeritus*)

J. W. Gibbs Assistant Professors Yariv Aizenbud, Pablo Boixeda Alvarez, Subhadip Dey, Gurbir Dhillon, Daniel Douglas, James Farre, Abinand Gopal, Erik Orvedh Hiltunen, Yakov Kononov, Boris Landa, Or Landesberg, Kevin O'Neill, Cosmin Pohoata, Congling Qiu, Ebru Toprak, Franco Vargas Pallete

Adjunct Professors Gil Kalai, Alex Lubotzky, Jacques Peyriere, Mathias Schacht

Senior Lecturers John Hall, Miki Havlickova

Lecturers Ian Adelstein, Mihai Alboiu, James Barnes, Rachel Diethorn, Eric Geiger, Su Ji Hong, Robert McDonald, Brett Smith

†A joint appointment with primary affiliation in another department.

See visual roadmap of the requirements.

Mathematics and Philosophy

Directors of undergraduate studies: Andrew Neitzke (andrew.neitzke@yale.edu) (Mathematics), DL 425; associate director of undergraduate studies: Miki Havlickova (miki.havlickova@yale.edu) (Mathematics), Math DUS (math.dus@yale.edu); DL 446; Daniel Greco (daniel.greco@yale.edu) (Philosophy), 106A C, 432-1687

The Mathematics and Philosophy major allows students to explore those areas where philosophy and mathematics meet, in particular, mathematical and philosophical logic and the philosophy of mathematics.

PREREQUISITE

The prerequisite for the major is MATH 120. Students who completed multivariable calculus during high school may consult with the directors of undergraduate studies (DUSes) about substituting a higher level mathematics course.

REQUIREMENTS OF THE MAJOR

The major requires twelve term courses including the prerequisite and the senior seminar. Of the remaining courses, at least four must be in mathematics at the 200 level or higher (other than MATH 470) and five must be in philosophy. All philosophy courses are eligible for credit toward the major, with the exception of First-Order Logic (PHIL 115). Required courses include Set Theory (MATH 270), Mathematical Logic (PHIL 267), Computability and Logic (PHIL 427), an additional advanced philosophy course with a substantive logical component, and one seminar in either mathematics or philosophy (other than PHIL 427) that fulfills the senior requirement (see below). Set Theory (MATH 270) and Mathematical Logic (PHIL 267) must be taken before the end of the junior year; it is strongly recommended that they be taken earlier.

A course must be listed with a MATH number to count toward the mathematics requirements – substitutions from other departments are not permitted.

SENIOR REQUIREMENT

Each year certain seminars offered by the Mathematics and Philosophy departments are designated as fulfilling the senior requirement of the combined major. If such a seminar is taken in order to fulfill the senior requirement, majors must consult with the instructor and agree upon additional work required. Typically, additional work includes a substantial class presentation and/or preparation of a series of drafts prior to submission of the final paper.

The mathematics seminars MATH 480 or MATH 481 fulfill the senior requirement. For philosophy seminars that fulfill the senior requirement, consult the director of undergraduate studies (DUS) in Philosophy.

Credit/D/Fail At most, one course taken Credit/D/Fail may be applied toward the major, with permission of the DUSes. The following courses must be taken for letter grades: MATH 270, PHIL 267, PHIL 427; the required mathematics courses level 200 or higher; the additional philosophy course with an advanced logic component; and the senior seminar.

ADVISING

A typical program satisfying the major might consist of MATH 120, MATH 222 or 225 or 226, MATH 270, 300, 350, and a designated seminar; PHIL 126, 267, 427, a designated seminar (other than PHIL 427), and two additional electives.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite MATH 120

Number of courses 12 term courses (incl prereq and senior sem)

Specific courses required MATH 270, PHIL 267, 427

Distribution of courses At least 4 courses in MATH at 200 level or higher; at least 5 courses in PHIL, incl 1 PHIL course with adv logic component

Senior requirement Senior seminar or MATH 480 or MATH 481

Mathematics and Physics

Adviser for the major: Vincent Moncrief (vincent.moncrief@yale.edu), 64 SPL, 432-6930

Directors of undergraduate studies: Andrew Neitzke (andrew.neitzke@yale.edu) (Mathematics), DL 425; associate director of undergraduate studies: Miki Havlickova (miki.havlickova@yale.edu) (Mathematics), DL 446, Math DUS (math.dus@yale.edu); Sarah Demers (sarah.demers@yale.edu) (Physics), EVN 207

The major in Mathematics and Physics allows students to explore the productive interaction between the two subjects more extensively than either individual major.

PREREQUISITES

Prerequisites to the major include MATH 120 or its equivalent, an introductory physics lecture sequence numbered PHYS 180, 181 or above, and the associated laboratory sequence PHYS 205L, 206L.

Students who completed multivariable calculus during high school may consult with directors of undergraduate studies (DUSes) about substituting a higher level mathematics course for MATH 120. The course being substituted will not count toward the total of fourteen term courses (beyond the introductory level) required for the major.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, the major requires a minimum of fourteen term courses above the introductory level, including the senior project. At least six of these must be Mathematics courses numbered 222 or above (other than MATH 470), and at least six must be advanced Physics courses chosen in consultation with the adviser for the major.

A course must be listed with a Math number to count toward the mathematics requirements—substitutions from other departments are not allowed.

SENIOR REQUIREMENT

A senior project in PHYS 471 or 472 on a topic appropriate for the combined major and acceptable to both the Physics and the Mathematics departments is also required. The student must present an oral report on this project to the Mathematics department.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or equivalent; PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261; PHYS 205L, 206L

Number of courses 14 term courses beyond prereqs, incl senior req

Distribution of courses 6 Math courses numbered 222 or above; 6 advanced Physics courses selected in consultation with major adviser

Senior requirement Senior project in PHYS 471 or 472 on topic acceptable to both depts; oral report on project to Math dept

Mechanical Engineering

Director of undergraduate studies: Corey O'Hern (corey.ohern@yale.edu), M203 ML, 432-4258; seas.yale.edu/departments/mechanical-engineering-and-materials-science

Mechanical engineering is among the most diversified of the traditional engineering disciplines. The mechanical engineer builds machines to extend our physical and mental capabilities and to convert traditional and novel energy sources into useful forms.

The role of the mechanical engineer has changed dramatically over the past few decades with the extensive use of high-performance computers (in such areas as computational fluid dynamics, materials design, control, and manufacturing), the interfacing of microelectromechanical systems and actuators via microprocessors to build high-precision sensors and devices, and the advent of advanced materials (e.g., composites, shape-memory alloys, ceramics, and superconductors) for new applications (e.g., coatings, biomaterials, and computer storage). These areas offer mechanical engineering students special opportunities for creativity, demanding that they learn not only in depth but also in breadth. Demands for increased energy efficiency and reduced environmental impact—as might be realized, for example, in novel gas turbine or electric hybrid vehicles—require that students understand the fundamentals of mechanics, thermodynamics, fluid mechanics, combustion, and materials science. In all these tasks, the utmost consideration of the modern mechanical engineer is improving the quality of human life. The engineer must also be constantly aware both of the finiteness of Earth's resources and its environment and of the burden that engineering places on them.

The educational mission of the Department of Mechanical Engineering and Materials Science is to provide an excellent education that will prepare students to become members of the next generation of mechanical engineers. To implement this mission, the department adheres to the following set of educational objectives: to provide a balanced technical and nontechnical education to enable graduates to enter highly selective graduate schools and/or to pursue technical careers in industry or government laboratories; to enable graduates to improve and adapt their skills to accommodate rapid technological changes; to prepare graduates to communicate effectively and to understand the ethical responsibilities and impact on society of their profession. To achieve these objectives, the following fundamental educational goals have been established for the Department of Mechanical Engineering and Materials Science: to provide a comprehensive introduction to basic science and mathematics, which form the foundation of mechanical engineering; to provide thorough training in analytical and experimental methods and in data analysis, including problem formulation; to provide instruction in the fundamentals of the design process, including project innovation, synthesis, and management, both individually and in a team setting; to provide both a technical and a nontechnical program of study in which oral and written communication skills are developed; and to instill in students an understanding of their professional and ethical responsibilities, which affect society and their profession.

COURSES FOR NONMAJORS

Mechanics and mechanical engineering content can be found in several courses intended for those not majoring in science. See Engineering and Applied Science.

THE MECHANICAL ENGINEERING PROGRAM

At Yale, three mechanical engineering programs are offered: a B.S. degree program with a major in Mechanical Engineering, a B.S. degree program with a major in Engineering Sciences (Mechanical), and a B.A. degree program with a major in Engineering Sciences (Mechanical). Prospective majors in both B.S. programs are advised to complete introductory physics and mathematics through calculus (MATH 115) by the end of their first year.

A student's undergraduate engineering program may include one or more special project courses (MENG 471, 472, 473, or 474), in which the student pursues a particular research interest through design-oriented projects and experimental investigations. Projects may be initiated by the student, may be performed in a team, or may be derived from the ideas of faculty members who place undergraduates in their ongoing research projects. All interested students should contact the director of undergraduate studies (DUS) for more information on special project courses.

B.S. degree program in Mechanical Engineering This is the most technically intensive mechanical engineering degree program and is accredited by the Engineering Accreditation Commission of ABET, Inc. This program is appropriate for students who plan careers as practicing engineers in industry, consulting firms, or government, as well as for students who are considering a career in research and plan to pursue an advanced degree in engineering.

B.S. degree program in Engineering Sciences (Mechanical) This non-ABET degree program is suitable for students who wish to gain significant expertise within mechanical engineering while combining their engineering studies with related disciplines. For example, a number of students have taken courses in architecture while pursuing a program in mechanical engineering that emphasizes structural mechanics; similarly, a student with an interest in computer graphics might combine engineering courses in computer-aided design with programming courses from the Department of Computer Science.

B.A. degree program in Engineering Sciences (Mechanical) In a society with increasing levels of technical sophistication, a well-rounded individual must have some background in science and technology. The non-ABET B.A. program is designed for students who may be planning careers in business, law, economics, medicine, journalism, or politics but need to understand the impact that science and technology can have on society at large. An understanding of engineering methods and practices, combined with a traditional liberal arts education, provides a strong background for a variety of careers. The program is well suited for students who wish to fulfill the requirements of two majors.

The major for all three degree programs requires a group of prerequisites or equivalents; several courses beyond the prerequisites; and a senior requirement, as indicated below.

PREREQUISITES

B.S. degree program in Mechanical Engineering The prerequisites in mathematics are MATH 112, 115, and ENAS 151, or the equivalent. The basic science prerequisites are PHYS 180, 181, or 200, 201; one laboratory from PHYS 165L or 205L, and one from PHYS 166L or 206L, or equivalents, and one introductory lecture course in chemistry, numbered CHEM 161 or higher. The chemistry lecture course may be waived for a Chemistry AP score of 4 or 5 or an IB Higher level or Standard level score of 6 or 7.

B.S. degree program in Engineering Sciences (Mechanical) The prerequisites in mathematics are MATH 112, 115, and ENAS 151, or the equivalent. The basic science prerequisites are PHYS 180, 181, or PHYS 200, 201; one laboratory from PHYS 165L or 205L, and one from PHYS 166L, 206L, or MENG 286L.

B.A. degree program in Engineering Sciences (Mechanical) The prerequisites in mathematics are MATH 112 and 115. The basic science prerequisite is physics at least to the level of PHYS 170, 171.

REQUIREMENTS OF THE MAJOR

B.S. degree program in Mechanical Engineering requires 20 courses and 19.5 credits beyond the prerequisites as follows:

1. Advanced mathematics: ENAS 194 and MATH 222 or 225
2. Mechanical engineering and related: MENG 185, 211, 280, 285, 286L, 325, 361, 363L, 383, 389, 390L, MENG 487L and 488L (the senior requirement), ENAS 130, EENG 200
3. Technical electives: three approved technical electives chosen in consultation with the DUS; only one course from MENG 471, 472, 473, or 474 may be counted as one of the three technical electives.

The curriculum in this program is arranged in prescribed patterns, but some departures from it are possible with approval of the DUS.

B.S. degree program in Engineering Sciences (Mechanical) The major requires twelve approved term courses in engineering (with only one course from MENG 471, 472, 473, or 474), beyond the prerequisites and including the senior project, which can cover a broad array of topics within the subject, provided that they contribute to a coherent program. Students should consult with the DUS at the beginning of their sophomore year.

B.A. degree program in Engineering Sciences (Mechanical) The program requires eight approved term courses in engineering (with only one course from MENG 471, 472, 473, or 474), beyond the prerequisites, including the senior project. Students should consult with the DUS at the beginning of their sophomore year.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the Mechanical Engineering major, including prerequisites.

SENIOR REQUIREMENT

B.S. degree program in Mechanical Engineering Students satisfy the senior requirement by taking MENG 487L (full-credit) and MENG 488L (half-credit) in the senior year.

B.S. degree program in Engineering Sciences (Mechanical) Students satisfy the senior project requirement by completing MENG 404; MENG 471, 472, 473, or 474; or another upper-level design course (taken during the senior year) chosen in consultation with the DUS. Only one course from MENG 471–474 may be counted toward the requirements of the major.

B.A. degree program in Engineering Sciences (Mechanical) Students satisfy the senior project requirement by completing MENG 471, 472, 473, or 474; or another upper-level design course (taken during their senior year) chosen in consultation with the DUS. Only one course from MENG 471–474 may be counted toward the requirements of the major.

SUMMARY OF MAJOR REQUIREMENTS**MECHANICAL ENGINEERING, B.S.**

Prerequisites MATH 112, 115, and ENAS 151, or equivalent; PHYS 180, 181, or PHYS 200, 201, and 2 labs (1 from PHYS 165L or 205L; 1 from PHYS 166L or 206L, or equivalents), and 1 introductory chemistry lecture course or equivalent

Number of courses 20 term courses and 19.5 credits beyond prerequisites (including senior req)

Specific courses required ENAS 130 and 194; EENG 200; MATH 222 or 225; MENG 185, 211, 280, 285, 286L, 325, 361, 363L, 383, 389, 390L

Distribution of courses 3 technical electives chosen in consultation with DUS (only one of MENG 471, 472, 473, or 474)

Substitution permitted With DUS approval

Senior requirement MENG 487L and MENG 488L taken in senior year

ENGINEERING SCIENCES (MECHANICAL), B.S.

Prerequisites MATH 112, 115, and ENAS 151, or equivalent; PHYS 180, 181, or 200, 201, and 2 labs (1 from PHYS 165L or 205L; 1 from PHYS 166L, 206L, or MENG 286L)

Number of courses 12 term courses beyond prerequisites (incl senior req)

Substitution permitted With DUS approval

Senior requirement MENG 404; MENG 471, 472, 473, or 474; or another upper-level design course chosen in consultation with the DUS

ENGINEERING SCIENCES (MECHANICAL), B.A.

Prerequisites MATH 112, 115; PHYS 170, 171 or higher

Number of courses 8 term courses beyond prerequisites (incl senior req)

Substitution permitted With DUS approval

Senior requirement MENG 471, 472, 473, or 474; or another upper-level design course chosen in consultation with the DUS

FACULTY OF THE DEPARTMENT OF MECHANICAL ENGINEERING AND MATERIALS SCIENCE

Professors Charles Ahn, Ira Bernstein (*Emeritus*), Aaron Dollar, Juan Fernández de la Mora, Alessandro Gomez, †Sohrab Ismail-Beigi, †Shun-Ichiro Karato, Marshall Long (*Emeritus*), Corey O'Hern, †Vidvuds Ozolins, †Brian Scassellati, Jan Schroers, Udo Schwarz (*Chair*), Mitchell Smooke

Associate Professors Rebecca Kramer-Bottiglio, Madhusudhan Venkadesan

Assistant Professors Ian Abraham, Yimin Luo, Amir Pahlavan, Diana Qiu, Cong, Su, †Daniel Wiznia

Senior Lecturer Beth Anne Bennett

Lecturers Joran Booth, Lawrence Wilen, Joseph Zinter

†A joint appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

Medieval Studies Certificate

Certificate director: Maria Doerfler (maria.doerfler@yale.edu) Spring 2023 [Fall 2023/
Spring 2024 TBA]; 432-0672; Medieval Studies

This certificate is available to all interested Yale College students, and provides them an opportunity to pursue a focused curriculum, in addition to their major, that will strengthen their liberal arts education. Medieval Studies is the interdisciplinary study of the histories, languages, and cultures of the medieval period worldwide. This certificate provides a curated set of courses across a range of departments – including, but not limited to, East Asian Studies, English, History, History of Art, Near Eastern Languages and Civilizations, and Religious Studies – to expand and deepen those interests.

The certificate requirements are flexible enough to offer structure and guidance to those students with a general interest in Medieval Studies, as well as accommodate interdisciplinary breadth for students whose research is already focused on the medieval period.

REQUIREMENTS

Students must successfully complete five course credits on medieval topics, drawn from the list of approved courses posted each semester on the Medieval Studies website. Other course credits may be approved by permission of the Certificate director and the course instructor.

Of the five credits: no more than three may originate in the same zone. As currently configured, the four zones are East Asia (YC MDVL: East & SE Asia); South Asia (YC MDVL: S & Central Asia); the Near East (YC MDVL: Nr East & N Africa); and Europe (YC MDVL: Eur Russ & N Atlantic). Students may search for courses that count toward the Certificate in YCS by using the attributes indicated after the name of the zone.

Additionally, no more than two course credits may overlap in the fulfillment of the requirements of the Medieval Studies certificate or of a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

In addition to the course requirements, each student must attend three lectures on medieval topics. After each lecture, students should submit a 1–2 page account of the lecture to the Certificate director to be credited for attendance. There are typically six Yale lectures in Medieval Studies every academic year, as well as Medieval Lunch talks. Notice of these events can be found on the Medieval Studies website.

Completion Procedure and Advising

Students must apply for the Certificate at latest one week before final schedules are due in their final semester of study, by completing the form on the Medieval Studies website attesting fulfillment of all requirements, and submitting it for approval to the Certificate director. Final approval of the certificate rests with the Certificate committee and director.

Students should also submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the form, and approval from the Certificate Director, is necessary to ensure that the earned Certificate appears on student transcripts.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits dispersed between the four zones (East Asia, South Asia, the Near East, Europe)

Distribution of courses up to 3 courses in any one of the four zones

Additional requirements attendance at 3 Medieval Studies lectures, each followed by a 1–2 page account of the event

Modern Middle East Studies

Director of undergraduate studies: Jonas Elbousty (jonas.elbousty@yale.edu);
www.yale.edu/macmillan/cmcs

The Modern Middle East Studies major focuses on the culture, history, religion, politics, and society of the modern Middle East in its full geographical breadth, while developing expertise in any of the major languages associated with the region, namely Arabic, Hebrew, Persian, and Turkish. Courses are drawn from departments in the humanities and social sciences, including Anthropology, History, History of Art, Judaic Studies, Political Science, Near Eastern Languages and Civilizations, Religious Studies, and Sociology. The Modern Middle East Studies major gives students the analytical and linguistic skills necessary to master the complex issues of the Middle East and serves as excellent preparation for graduate study or for professional careers in which an understanding of that region is essential.

REQUIREMENTS OF THE MAJOR

The major allows students to develop highly individualized courses of study, tailored to their own academic, intellectual, and linguistic interests. There are no prerequisites. Twelve term courses are required for the major, including one course at the L5 level in a Middle Eastern language and two survey courses on the modern period, taken at the introductory level. Beyond those requirements, students take eight distribution courses focusing on any aspect of the culture, thought, history, religion, politics, and society of the region. These eight distribution courses must be spread geographically and temporally and draw from distinct methodological or disciplinary approaches. They must include, at a minimum, two courses from different regions or countries within the Middle East, two courses from different departments or programs, two courses that focus substantially on the period before 1750, and two advanced seminars. Up to two language courses below L5 in a Modern Middle East language may count toward the distributional requirement with approval of the director of undergraduate studies (DUS). The proposed course of study also requires DUS approval.

SENIOR REQUIREMENT

Students in the major undertake a one- or two-term senior essay that involves use of materials in one or more modern Middle Eastern languages. Each student selects a faculty adviser with competence in the appropriate language. A prospectus and outline signed by the adviser must be submitted to the DUS by the end of the fourth week of classes in either term of the senior year. Senior essays are graded by the adviser and a second reader. See the course descriptions of the senior essay courses (MMES 491, 492, 493) for further information. Alternatively, under supervision of the instructor, majors may take an additional seminar and write an essay in that course to fulfill the senior requirement.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses

Distribution of courses 2 intro survey courses on the Middle East, focusing on the modern period; 2 courses from different Middle Eastern regions or countries;

2 courses from two different departments or programs; 2 courses with focus on pre-1750; 2 adv seminars; and 1 course at L5 level in a Middle East language

Substitution permitted With DUS approval, up to 2 language courses below L5 in Modern Middle East language may count toward distributional requirement

Senior requirement One-term senior essay (MMES 491), two-term senior essay (MMES 492, 493), or essay written in additional seminar

FACULTY ASSOCIATED WITH THE PROGRAM OF MODERN MIDDLE EAST STUDIES

Professors Frank Griffel (*Religious Studies*), Hannan Hever (*Comparative Literature*), Marcia Inhorn (*Anthropology*), Ivan Marcus (*History*), Alan Mikhail (*History*), A. Mushfiq Mobarak (*School of Management*), Kishwar Rizvi (*History of Art*), Maurice Samuels (*French*), Shawkat Toorawa (*Near Eastern Languages & Civilizations*)

Associate Professors Thomas Connolly (*French*), Robyn Creswell (*Comparative Literature*), Zareena Grewal (*American Studies*), Kaveh Khoshnood (*Public Health*), Eliyahu Stern (*Religious Studies*), Jonathan Wyrzten (*Sociology*), Travis Zadeh (*Religious Studies*)

Assistant Professors Supriya Gandhi (*Religious Studies*), Samuel Hodgkin (*Comparative Literature*), Jill Jarvis (*French*), Elizabeth Nugent (*Political Science*), Eda Pepi (*Women's, Gender, & Sexuality Studies*), Claire Roosien (*Slavic Languages and Literatures*), (Evren Savci (*Women's, Gender, & Sexuality Studies*))

Senior Lecturers Tolga Köker (*Economics*)

Lecturers Karla Britton (*Architecture*), Teresa Chahine (*School of Management*), Emma Sky (*Global Affairs*)

Senior Lecturer II Sarab Al Ani, Shiri Goren

Senior Lectors Muhammad Aziz, Jonas Elbousty, Dina Roginsky, Farkhondeh Shayesteh, Orit Yeret

Lector Ezgi Yalcin

Molecular Biophysics and Biochemistry

Director of undergraduate studies: Andrew Miranker (andrew.miranker@yale.edu), 318 BASS, 432-8954, MBBUndergrad@yale.edu; mb&b.yale.edu

Members of the Department of Molecular Biophysics and Biochemistry (MB&B) are united by a common view that processes in biology are understood when molecular, chemical, kinetic, and thermodynamic contributions to mechanisms have been elucidated. Correspondingly, our faculty and students are joined by a shared fascination with biochemistry, physical chemistry, structural biology, computation, spectroscopy, macromolecular engineering, imaging and the molecular basis of disease.

Three quarters of our graduates matriculate into PhD, MD, and MD/PhD programs. Other recent graduates have joined companies specializing in finance, management consulting, biotechnology, and pharma. Others have matriculated in law or business school and doctoral programs in the humanities. Still others have performed public service, entered secondary education, or joined the United States armed forces as officers.

INTRODUCTORY COURSES

The basic introductory science courses suggested for all majors include a two-term lecture sequence in general chemistry with its associated laboratories (CHEM 161, 165, 134L and 136L); a one-term course in organic chemistry with its associated laboratory (CHEM 220 or 174 with CHEM 222L); two terms of calculus (MATH 112 and MATH 115 or 116); two half-term units of biochemistry, biophysics and cell biology (BIOL 101, 102). Some concentrations, described below, require additional introductory biology satisfied by (BIOL 103, 104).

REQUIREMENTS OF THE MAJOR

The core elements of the major are biophysics, biochemistry, and science and society. The requirements beyond these core elements teach advanced concepts, and teach the technology and practical skills that enable scholarship in the discipline.

The major requirements for the Class of 2024 and Class of 2025 With approval from the DUS, the following changes to the major may be fulfilled by students who declared their major under previous requirements.

The following changes to the major requirements for the Class of 2026 and subsequent classes apply to the B.S. degree, the B.A. degree, and the B.S./M.S. degree.

B.A. Degree Program The B.A. degree program requires a total of 9.5 course credits to include: 3 biophysics credits; 3 biochemistry credits, a half-credit for science and society; 1 credit to fulfill the practical skills requirement; 1 elective; and the senior requirement.

The *core Biophysics requirements* are two semesters of physics (PHYS 170 and 171 or higher) and one semester of biophysical chemistry (MB&B 275 or CHEM 332).

The *core Biochemistry requirements* include MB&B 300 and 301 (substitutions are not permitted), and CHEM 175 or any 200+ level Chemistry course.

The *Science and Society core requirement* is 0.5 credit (MB&B 268 is recommended) and addresses the intersection of Molecular Biophysics & Biochemistry with human identity and society. Alternatives to MB&B 268 are MB&B 107, AFAM 170, HSHM 206, HSHM 241, HSHM 406, HSHM 409, HSHM 424, HSHM 436, HSHM 475, HSHM 481, HIST 479, SOCY 126, SOCY 127, SOCY 351, MCDB 375, WGSS 270, WGSS 457, WGSS 741. Petitions for course substitutions (see below) are encouraged.

The *Practical skills* requirement is fulfilled with one full-credit or two half-credit courses spread across two or three of the categories listed below. At least one half-credit must come from MB&B.

- Physics lab options include MB&B 121L, MB&B 124L, MB&B 470 and MB&B 471*, PHYS 165L, PHYS 166L, CHEM 355L, other 200+ level lab courses with DUS approval.
- Biochemistry Lab options include MB&B 251L, MB&B 470 and MB&B 471*, CHEM 355L, other 200+ level lab courses with DUS approval.
- Critical Tools options include MB&B 435, MB&B 470 and MB&B 471*, S&DS 105, 238, CPSC 112 and others with DUS approval.

*MB&B 470 and MB&B 471 are research for credit courses. Above categorization is dependent on the research project. Up to two credits may be taken for a letter grade.

The *Elective course* should be a lecture or seminar MB&B course at the 200+ level.

B.S. Degree Program The B.S. degree program requires a total of 12.5 course credits including the senior requirement. This program follows the requirements and policies of the B.A. degree program with the following additions.

For the *core Biophysics requirement*: one additional 300+ course in physical sciences, mathematics, statistics or computer science

For the *Practical Skills requirement*: one additional credit for a total of two credits

For the *elective courses*: one additional 200+ level seminar or lecture course in STEM

Combined B.S./M.S. Degree Program The B.S./M.S. degree program requires a total of 18.5 course credits including the senior requirement. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult their academic advisor prior to the fifth term of enrollment for details and application requirements (due December 1 of the fifth semester). The B.S./M.S. program follows the requirements of the B.S. Degree program with the following additions.

For the *core Biophysics requirement*: one additional 300+ course in thermodynamics, statistical mech, quantum and/or spectroscopy (CHEM 332 is recommended). PHYS 180 and 181 in place of PHYS 170 and 171.

The *Practical Skills* requirement is replaced by one semester of MB&B 470 or 471 which must be completed by the end of the fifth semester.

For the *Elective course*, the single MB&B 200+ seminar or lecture elective is replaced by two MB&B electives at 500+ and four 500+ electives in STEM.

CONCENTRATIONS

Concentrations in MB&B are sets of electives, curated by faculty, designed to focus attention on specific subfields of Molecular Biophysics and Biochemistry. Concentrations appear on a student's official Yale transcript and are currently available in Biochemistry; Biophysics and Structural Biology; Chemical Biology; Computational Biology and Bioinformatics; Environment and Climate Change; and Medicine. Students must fulfill all major degree requirements, earning a concentration is optional. For specific concentration requirements see the Concentrations section.

Electives taken for the major that meet the same criteria as requirements for a concentration may be used to fulfill both requirements. Placement exams and acceleration credits do not count towards completion of concentration-specific requirements. Instead, majors enroll in higher-level courses in the same concentration-specific category. Depending on the particular concentration and the choice of electives, concentrations add between zero and three additional credits to major requirements.

Some concentrations include research-for-credit courses or course-based undergraduate research experiences (CUREs) as a mechanism to fulfill a requirement. These courses must directly relate to the chosen concentration (broadly interpreted) and require DUS approval.

Credit/D/Fail One course taken Credit/D/Fail may be counted toward the requirements of the major. This does not affect students' ability to graduate with distinction, but does count against Yale's limit of 6 total Credit/D/Fail courses. Qualifying courses must be 400+ in MB&B, and 300+ in any other STEM subject. For B.S./M.S. students, all required coursework must be taken for a letter grade.

SENIOR REQUIREMENT

The senior requirement for both the B.S. and the B.A. is fulfilled by successful completion of a one credit senior essay. Students may enroll in MB&B 490 and prepare a written report and make an oral presentation of a literature project or students may enroll in MB&B 491 and write an essay that draws on laboratory research performed at Yale College. Students meet with faculty members in charge of the courses during the first two weeks of the term in which they are writing their essay, to agree on a topic and an approach. It is appropriate for students who took research for credit earlier in their training to write on their research topic. The literature project for the senior requirement should be original work approved by the faculty member overseeing MB&B 490.

The senior requirement for B.S./M.S. is completion of MB&B 570 and 571 taken during senior year.

ADVISING

Students are encouraged to declare their major long before completion of the introductory courses. This greatly improves academic advising. Changing majors at Yale does not require approval and is non-binding.

Students are assigned a member of MB&B faculty for academic advising as soon as they declare their major. Requests to change advisors should be sent to the registrar via email (elizabeth.vellali@yale.edu). Justification is not required nor is DUS approval.

Course Substitutions Students may petition the DUS for course substitutions by assembling the relevant syllabi and writing a short justification (less than 300 words). Thoughtful requests in line with MB&Bs teaching goals are always welcome.

DUS approvals: DUS approvals for waivers, course substitutions, endorsement of petitions to the Committee on Honors and Academic Standing, applications to the B.S./M.S. program etc., are initiated by an email of support from students' assigned MB&B academic advisor. The academic advisor functions as the student's advocate on requests to the DUS with the MB&B registrar giving oversight and interfacing with the University registrar. One-on-one meetings by majors with their MB&B academic advisor during every registration period are logged. Failure to schedule meetings and missed meetings are factored into the DUS approval process.

Graduate work Graduate courses in molecular biophysics and biochemistry, biology, and the biomedical sciences that may be of interest to undergraduates are listed in the Graduate School online bulletin, and many are posted on the Biological and Biomedical Sciences website. Additional information is available from the DUSes and the director of graduate studies. Undergraduates with an appropriate background may enroll with the permission of the director of graduate studies and the instructor.

Combined B.S./M.S. degree program A very small number of students will be eligible to complete a six-year course of study within 8 terms of enrollment leading to the simultaneous award of the B.S. and M.S. degrees. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult their academic advisor prior to the fifth term of enrollment.

Sample schedules Diverse pathways exist for navigating the B.A. and B.S. degrees. In general, students are strongly encouraged to complete General Chemistry (e.g. CHEM 161, 165, 134L and 136L), introductory calculus (e.g. MATH 112) and introductory Biochemistry, Biophysics and Cell Biology (BIOL 101, 102) by the end of their first year. See the MB&B website for 4-year sample degree programs covering all six concentrations and for students who do not elect to pursue a concentration.

SUMMARY OF MAJOR REQUIREMENTS

Introductory courses BIOL 101 and 102; 2 terms general chem with associated labs; 1 term organic chem with associated lab; 2 terms of calculus; BIOL 103 and 104 for some concentrations

Number of courses *B.A.*–9.5 course credits (incl senior project); *B.S.*–12.5 course credits (incl senior project)

Distribution of courses *B.A.*–3 biophysics credits to incl MB&B 275 or CHEM 332 and PHYS 170 and PHYS 171 or higher; 3 biochemistry credits to incl MB&B 300, 301, and CHEM 175 or 200+ Chem course; MB&B 268, a half-credit for science and society or other course as approved by DUS; 1 credit practical skills course(s); and 1 MB&B

elective 200+ level or higher; B.S.–same reqs as for B.A. degree plus 1 addtl Practical Skills credit; 1 addtl 300+ biophysics credit; and one addtl 200+ credit in STEM

Senior requirement MB&B 490 or MB&B 491

BIOCHEMISTRY CONCENTRATION

The concentration in Biochemistry is geared towards students seeking robust training in structure and function of nucleic acids and proteins in the context of life processes. Molecular length scale biochemistry is foundational to the mechanisms by which dynamic networks of molecular machines enable everything from cellular function to whole organism physiology. Failures in these networks are responsible for pathology in plants and animals, agriculture and medicine. MB&B majors interested in working in these fields directly after graduation, or who hope to pursue graduate studies including PhD and MD/PhD, are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Genetics and Development and Ecology and Evolution: BIOL 103 and 104

Molecular, Cellular, or Organismal Biology: MCDB 205, 202, or as approved by the DUS

Research in Biochemistry: MB&B 470 or 471 or course-based undergraduate research

Advanced Chemical Biology lecture or seminar (1 credit for B.A. degree and 2 credits for B.S. degree): 300+ courses such as MB&B 365, 330, 445, 449, or 443

BIOPHYSICS AND STRUCTURAL BIOLOGY CONCENTRATION

This concentration is designed for students with strong interests in life processes on the molecular length scale. Majors aspiring to graduate studies in biophysics, molecular medicine, and biotechnology are particularly encouraged to fulfill this concentration.

Biophysics and Structural Biology are made possible by fundamental quantitative and physical tools such as linear algebra, Fourier analysis, x-ray diffraction, imaging, and optical spectroscopy to measure biomolecular dynamics and atomic resolution structure. Seminar courses applicable to this area focus on the basic biology enabled by exquisitely specific macromolecular interactions, the molecular basis of disease and drug-design.

In addition to, and/or as part of, the degree requirements, the following courses are required:

Computer Science, Math, Statistics (for B.A. degree): one from MATH 120, 225, S&DS 100+, or CPSC 112

Computer Science, Math, Statistics (for B.S. degree): one from MATH 120, 225, S&DS 238, or CPSC 112

Biophysical Chemistry (for B.S. degree): one from CHEM 332 or MB&B 431 or any 300+ elective in thermodynamics, statistical mech, quantum mechanics or spectroscopy

Research in Biophysics and Structural Biology (for both degrees): one from MB&B 470, MB&B 471, CHEM 355, or course-based undergraduate research

Tools and Quantitative Analysis (for B.S. degree): one 200+ course with emphasis on measurement and/or modeling of energy, kinetics, or structure relevant to the molecular length scale, such as MB&B 330, 420, 431, 435, CHEM 333, 406, 492, or as approved by the DUS

Advanced Biophysics and Structural Biology lecture or seminar (both degrees): one from MB&B 420, 431, 520, or as approved by the DUS

CHEMICAL BIOLOGY CONCENTRATION

Chemical Biology leverages the tools and concepts of chemistry to understand and/or manipulate biological processes. Students interested in the MB&B concentration in Chemical Biology select electives from organic and inorganic chemistry as well as advanced courses in cell biology. Majors interested in additional studies in chemical biology, drug development, and/or biotechnology after graduation are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Organic Chemistry (both degrees): second semester of Organic Chemistry and accompanying half-credit lab

Cell Biology and Chemistry (for B.S. degree only): two 200+ electives *and* one 300+ elective in Chemistry or Cell Biology (at least one credit must cover cell biology or chemistry)

Cell Biology (for B.A. degree only): one 200+ elective in cell-based biology

Research in Chemical Biology (both degrees): one from MB&B 470, 471, or MB&B 364, or course-based undergraduate research

Advanced Chemical Biology lecture or seminar (both degrees): MB&B 443 or CHEM 419 or as approved by the DUS

COMPUTATIONAL BIOLOGY & BIOINFORMATICS CONCENTRATION

This concentration is designed for students with strong interests in computer science, data science, statistics, and biology. Majors aspiring to graduate studies in computational biology, bioinformatics, medical informatics or biotechnology are particularly encouraged to fulfill this concentration.

In addition to, and/or as part of, the degree requirements, the following courses are required:

Genetics and Evolutionary Biology (B.A. degree): BIOL 103 and 104

Genetics and Evolutionary Biology (B.S. degree): one 200+ elective in genetics, MCDB 200, 202, 310, MB&B 330

Computer Science, Math, Statistics (B.A. degree): CPSC 201 *and* one S&DS 100+ course

Computer Science, Math, Statistics (B.S. degree): CPSC 223, CPSC 201, and S&DS 238 (CPSC 223 may also be used to fulfill the 300+ core biophysics elective requirement). Other courses may be substituted with permission of the DUS.

Advanced Computational Biology & Bioinformatics (both degrees): MB&B 452 or CPSC 453 or as approved by the DUS.

ENVIRONMENT AND CLIMATE CHANGE CONCENTRATION

This concentration is geared towards students seeking robust training in life processes as they affect, and are affected by the environment, human activity, and climate change. MB&B majors interested in working in these fields directly after graduation, or who hope to pursue graduate studies are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Physical environmental science (for B.S. degree): one credit 300+ course from EVST 362, EPS 310, EPS 323, EPS 335, CHEM 332, or CHEM 333

Environmental chemistry (both degrees): one credit 200+ course from EVST 307, EPS 310, CHEM 252, or ENVE 438. May be used to fulfill 200+ elective requirement in chemistry.

Math, statistics and/or computer science (both degrees): one credit course from MATH 120, MATH 121, MATH 222 or higher, S&DS 100 or higher, or CPSC 100 or higher. May be used to fulfill the practical skills requirement.

Ecology and evolution (both degrees): one credit 100+ course from BIOL 104, E&EB 225, or ANTH 267. May be used to fulfill the 200+ STEM requirement for the B.S. degree.

Environmental Sciences (both degrees): one credit 100+ course from CENG 120, EVST 223, EVST 265, EPS 101, EPS 125, EPS 140, EPS 232, or EPS 261. May be used to fulfill 200+ STEM requirement for B.S. degree.

Advanced Environment Lecture or Seminar (one credit for B.A. degree/two credits for B.S. degree): one or two credit courses from MB&B 365, ENVE 464, EVST 415, EPS 355, ENVE 441, EPS 323, ENVE 360, ENVE 438. MB&B 365 may be used to fulfill 200+ MB&B requirement for all degrees.

MEDICINE CONCENTRATION

This concentration is designed for students with strong interests in the molecular basis of physiology and disease. Majors aspiring to graduate studies in biomedical sciences, work in biotechnology, or medical school are particularly encouraged to fulfill this concentration.

In addition to, or as part of, the degree requirements, the following courses are required:

Genetics and Development: BIOL 103 and 104

Organic Chemistry: second term of organic chemistry (CHEM 175 or 221)

Statistics: Any introductory S&DS 100+ course, S&DS 150, S&DS 230 recommended

Psychology: PSYC 110 or higher or PSYC 312

Physics labs (1 credit): MB&B 121L, MB&B 124L, PHYS 165L, 166L, MB&B 364, or others as approved by the DUS (see below) are encouraged.

Biomedical research (total for 1 credit): MB&B 470 or MB&B 471, or course based undergraduate research including MB&B 251L, MCDB 291L, or others

Advanced Seminar: one

from MB&B 445, MB&B 452, MB&B 449, MCDB 315, MCDB 450, or others as approved by the DUS

FACULTY OF THE DEPARTMENT OF MOLECULAR BIOPHYSICS AND BIOCHEMISTRY

Professors †Karen Anderson, Susan Baserga, †Ronald Breaker, †Gary Brudvig, †Sandy Chang, Enrique De La Cruz, †Daniel DiMaio, Donald Engelman, Mark Gerstein, Wendy Gilbert, Nigel Grindley (*Emeritus*), † Sharon Hammes-Schiffer, Mark Hochstrasser, Jonathon Howard, Michael Koelle, Anthony Koleske, William Konigsberg, †Mark Lemmon, †Patrick Loria, †I. George Miller, Andrew Miranker, †Peter Moore (*Emeritus*), Karla Neugebauer, Lynne Regan (*Emeritus*), †Karen Reinisch, †David Schatz, Christian Schlieker, Robert Schulman (*Emeritus*), †Frederick Sigworth, Dieter Söll, Mark Solomon, Joan Steitz, Scott Strobel, Yong Xiong

Associate Professors Julien Berro, †Titus Boggon, Matthew Simon, †Shervin Takyar, †Yongli Zhang

Assistant Professors Franziska Bleichert, Allison Didychuk, †Luisa Escobar-Hoyos, Lilian Kabeche, †Erdem Karatekin, Nikhil Malvankar, †Wei Mi, Candice Paulsen, †Sarah Slavoff, Kai Zhang

Adjunct Professors Kenneth Williams, Carl Zimmer

Lecturer Kate Schilling

†A joint appointment with primary affiliation in another department.

See visual roadmap of the requirements.

Molecular, Cellular, and Developmental Biology

Director of undergraduate studies: Douglas Kankel (douglas.kankel@yale.edu), 121 YSB, 432-3839; MCDB undergraduate registrar (mcdb.ureg@yale.edu): Andrea Chamba, (mcdb.ureg@yale.edu) 432-3839; mcdb.yale.edu

The science of biology is extremely broad, ranging across the domains of molecules, cells, tissues and organs, organisms, and ecosystems. Moreover, biology explores questions of evolutionary history and the processes of evolutionary change, as well as the mechanisms by which cells, organisms, and ecosystems function. Students majoring in Molecular, Cellular, and Developmental Biology receive a thorough yet varied liberal education and preparation for professional careers in a diverse array of fields. Practical applications of biology include the development of biologicals and pharmaceuticals, the practice of medicine, and the pursuit of the scientific bases for understanding the development and function of biological systems.

Molecular, Cellular, and Developmental Biology (MCDB) offers programs for students wishing to concentrate on molecular and cellular biology and genetics, with applications to problems in cell and developmental biology, neurobiology, and various aspects of quantitative biology. Interdisciplinary opportunities are available within the major in the Biotechnology, Neurobiology, and Quantitative Biology concentrations (previously tracks).

The MCDB major offers many opportunities for independent laboratory research. With approval, research can be conducted under the supervision of faculty members in any Yale department.

PREREQUISITES

Most but not all of the MCDB courses require prior preparation in biological science. First years should take BIOL 101, 102, 103, and 104 or contact the director of undergraduate studies (DUS) for more information. All majors must also complete a course in mathematics numbered MATH 115 or higher or a statistics course taken at Yale and approved by the DUS.

For the B.A. degree, students must take a two-term lecture sequence in chemistry, usually in their first year, and a term course in physics numbered PHYS 170 or higher usually in their junior year.

For the B.S. degree, students must take a two-term lecture sequence in chemistry, with associated laboratories usually in their first year; a term course in organic chemistry with its associated laboratory usually in their sophomore year; and two term courses in physics numbered PHYS 170 or higher usually in their junior year.

PLACEMENT PROCEDURES

Placement in MCDB courses is determined by examinations administered at Yale or by permission of the DUS. A student may place out of one or more courses in the BIOL 101–104 sequence. One or more of these foundational biology courses (or equivalent performance on the corresponding biological sciences placement examination) may be explicitly required as prerequisites for upper-level MCDB courses. Students that place

out of two BIOL modules will be required to take an additional credit in MCDB's core courses.

Placement in chemistry courses is arranged by the Department of Chemistry. Because required chemistry courses are prerequisite to several MCDB courses, students are strongly encouraged to take general and organic chemistry in the first and/or sophomore years. Students who place out of general chemistry may want to consider taking organic chemistry during the first year. Finishing the prerequisites early allows for a more flexible program in later years.

Acceleration credit awarded in chemistry, mathematics, or physics, or completion of advanced courses in those subjects, is accepted in place of the corresponding prerequisites for the MCDB major. Students who have mathematics preparation equivalent to MATH 115 or higher are encouraged to take additional mathematics courses, such as MATH 120, 222, or 225, or ENAS 151 or 194. Students in the B.A. degree program who have satisfied one or more prerequisites with advanced placement must still complete three term courses in chemistry and physics at Yale, including at least one from each department.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree requires a minimum of five and one-half course credits beyond the prerequisites, including five lecture or seminar courses and one laboratory, as follows:

1. Two core courses selected from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300)
2. Two general electives selected from MCDB courses numbered 250 or above, or two additional core courses from the list above. Two laboratory courses, either MCDB 342L and 343L or MCDB 344L and 345L, can be paired for a single elective credit. If used as an elective, these laboratories cannot also fulfill the laboratory requirement
3. One special elective selected from MCDB courses numbered 350 or higher
4. One laboratory from the biological sciences. Laboratories may be selected from MCDB, Molecular Biology and Biophysics, or Biomedical Engineering, or, with permission of the DUS, from Anthropology or Ecology & Evolutionary Biology
5. The senior requirement (senior essay option does not carry course credit)

B.S. degree program The B.S. degree requires a minimum of nine course credits beyond the prerequisites, including eight lecture or seminar courses and two laboratories, as follows:

1. Three core courses selected from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300)
2. Two general electives selected from MCDB courses numbered 250 or above. Additional core courses from the list above, a second term of organic chemistry, and a course in statistics may be used as general electives. Two laboratory courses, either MCDB 342L and 343L or MCDB 344L and 345L, can be paired for a single elective credit. If used as an elective, these laboratories cannot also fulfill the laboratory requirement
3. One special elective from MCDB courses numbered 350 or higher

4. Two laboratories from MCDB
5. The senior requirement (2 course credits), described below

The B.S. degree program, intensive major Requirements for the B.S. degree program, intensive major, are the same as those for the B.S. degree except for the senior requirement (see below).

Independent research courses before senior year The only independent research course available to students prior to the senior year is MCDB 474. This course is graded Pass/Fail and contributes to the thirty-six course credits required for the bachelor's degree, but it does not substitute for any MCDB major requirement, including the senior requirement. No independent research course satisfies a lab requirement for the MCDB major.

Independent research courses during senior year The research courses MCDB 475, 485, 486, and 495, 496 exist primarily to fulfill the senior requirement, and do not satisfy any other requirement for the major. Note that Yale College limits the number of independent study or independent research courses that students may take; see Academic Regulations, section C, Course Credits and Course Loads. Any independent study course, regardless of its number, is included in the total. No independent research course satisfies a lab requirement for the MCDB major.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the MCDB major, including prerequisites.

SENIOR REQUIREMENT

In addition to the course requirements described above, all students must satisfy a senior requirement undertaken during the senior year. A booklet listing the senior requirements of each concentration and degree is available in the office of the DUS (111 YSC). All students must fill out a checklist of requirements and go over it with the MCDB undergraduate registrar, (mcdb.ureg@yale.edu) by the spring term of the junior year.

B.A. degree program For the B.A. degree, the senior requirement can be met either by submitting a senior essay of 15–20 pages evaluating current research in a field of biology, or by successful completion of one term of individual research (MCDB 475). A senior choosing to fulfill the requirement with a senior essay must consult with a faculty adviser on the scope and literature of the topic and submit the adviser's written approval to the DUS no later than the course selection period of the term in which the paper is due. The senior essay may be related to the subject matter of a course, but the essay is a separate departmental requirement in addition to any work done in a course and does not count toward the grade in any course. The senior essay must be completed and submitted to the office of the DUS by the last day of classes. Students electing this option should obtain an approval form from the office of the DUS. Students who select this option should be aware it carries no credit.

B.S. degree program For the B.S. degree, the senior requirement is usually fulfilled by completing a yearlong research course, MCDB 485, 486. The senior requirement must be completed during the senior year. Yale College does not grant academic credit for summer research unless the student is enrolled in an independent research course in

Yale Summer Session. Seniors working toward the B.S. degree are expected to spend at least ten hours per week in the lab conducting individual research.

B.S. degree program, intensive major Requirements for the B.S. degree with an intensive major are the same as those for the B.S. degree except that students fulfill the senior requirement by taking MCDB 495, 496 for four course credits. Seniors in the intensive major are expected to spend at least twenty hours per week in the lab conducting individual research.

ADDITIONAL INFORMATION AND ADVISING

The prerequisites for the B.S. degree fulfill most of the usual premedical science requirements. Students who choose the B.A. degree can also prepare for medical school by taking additional premedical courses.

Selection of courses A relevant intermediate or advanced course from another department in science, engineering, mathematics, or statistics may be accepted as an elective with permission of the DUS. Many courses in other departments have prerequisites; such prerequisites can be substituted for an upper-level elective with permission of the DUS.

Residential College Seminars cannot be substituted for electives and do not count toward the requirements of the major. The MCDB major should not be taken as one of two majors with Molecular Biophysics and Biochemistry, Ecology and Evolutionary Biology, or Neuroscience.

Advising First-year students considering a major in Molecular, Cellular, and Developmental Biology are invited to consult with the DUS and/or a faculty member in MCDB who is a fellow of their residential college. MCDB majors are required to meet with the MCDB faculty adviser and the departmental undergraduate registrar (mcdb.ureg@yale.edu) once per term and prior to registration. For assistance in identifying a suitable adviser, students should contact the departmental undergraduate registrar. (mcdb.ureg@yale.edu) Students in the Biotechnology, Neurobiology, or Quantitative Biology concentrations should consult an adviser for their concentration (listed below). Students whose regular adviser is on leave can consult the office of the DUS to arrange for an alternate.

College faculty advisers available to first-year students are listed below.

BF	D. Kankel	MC	H. Keshishian
BK	V. Irish, J. Wolenski, S. Bahmanyar	MY	D. Clark, C. Crews
BR	I. Dawson, T. Emonet, S. Hatzios, J. van Wolfswinkel, D. Breslow	PC	J. Carlson, V. Horsley, N. Dimitrova, J. Yan
DC	P. Forscher, W. Zhong	SM	S. Dellaporta
ES	TBD	SY	S. Nachtergaele
GH	M. Mooseker, R. Wyman	TC	Y. Jacob, M. Moreno
JE	R. Breaker, F. Isaacs	TD	S. Holley

Simultaneous B.S./M.S. degree program Exceptionally able and well-prepared students may accelerate their professional education by completing a course of study leading to the simultaneous award of the B.S. and M.S. degrees after eight terms of enrollment. Students may not enroll in Yale College for more than eight terms in

order to qualify for the simultaneous award of both degrees. It is possible to earn both degrees in fewer than eight terms, but not by the use of acceleration credits. The requirements are as follows:

1. Candidates must satisfy the Yale College requirements for the B.S. degree. Students in the program must complete the core courses for the major and choose their 4 electives from graduate-level courses. One of the electives must be a graduate seminar selected with the approval of the DUS. Grades below B- in graduate courses are not accepted.
2. In addition to the courses specified above, students must complete three terms of graduate research courses for six course credits: (1) MCDB 585, a two-credit course taken in the second term of the junior year. At the start of the course, each student forms a committee comprised of the faculty adviser and two faculty members that meets to discuss the research project. Two of the members of this committee must be members of the MCDB faculty. At the end of the course, the student completes a detailed prospectus describing the thesis project and the work completed to date. The committee evaluates an oral and written presentation of the prospectus and determines whether the student may continue in the combined program; (2) MCDB 595, 596, a four-credit, yearlong course that is similar to MCDB 495, 496 and is taken during the senior year. During the course, the student gives an oral presentation describing the work. At the end of the course, the student is expected to present his or her work to the department in the form of a poster presentation. In addition, the student is expected to give an oral thesis defense, followed by a comprehensive examination of the thesis conducted by the thesis committee. Upon successful completion of this examination, as well as all other requirements, the student is awarded the combined B.S./M.S. degree.

Students must also satisfy the requirements of Yale College for the simultaneous award of the bachelor's and master's degrees, including the following:

1. To be considered for admission to the program, by the end of their fifth term of enrollment students must have achieved at least two-thirds A or A- grades in all of their courses as well as in all of the courses directly relating to the major, including prerequisites.
2. Students must apply in writing to the DUS and obtain departmental approval no later than the last day of classes in their fifth term of enrollment in Yale College.
3. Students must have the approval of both the DUS and the director of graduate studies to receive graduate credit for the graduate courses they select.
4. Graduate work must not be entirely concentrated in the final two terms, and students in the program must take at least six term courses outside the department during their last four terms at Yale and at least two undergraduate courses during their last two terms.
5. Students must earn grades of A in at least two of their graduate-level term courses (or in one yearlong course) and have at least a B average in the remaining ones.

For more information, see Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees."

STUDY ABROAD

Some programs for study abroad are available to MCDB majors. Approved programs can fulfill some of the requirements for the major. Interested students should consult the DUS and the Center for International and Professional Experience.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *B.A.* – BIOL 101, 102, 103, 104; a two-term lecture sequence in chem; one term of PHYS 170 or above; MATH 115 or above or a Yale statistics course approved by the DUS; *B.S.* – same as for the *B.A.* degree, in addition to labs associated with a two-term lecture sequence in chem; 1 term of organic chem with lab; two terms of physics, PHYS 170 or above

Number of courses *B.A.* – 5 courses and 1 lab, totaling at least 5½ course credits beyond the prereqs; *B.S.* – 8 courses and 2 labs, totaling at least 9 course credits beyond the prereqs; *B.S., intensive major* – 8 courses and 2 labs, totaling at least 11 course credits beyond prereqs

Specific courses required *Neurobiology concentration (track)* – MCDB 320; *Biotechnology concentration (track)* – MCDB 370; *Quantitative Biology concentration (track)* – MCDB 330

Distribution of courses *B.A.* – 2 core courses from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300); 2 electives numbered MCDB 250 or above (or 2 addtl core courses); 1 elective numbered MCDB 350 or above; 1 biology lab; *B.S.* – 3 core courses from MCDB 200, 202, 205, 210, 290, 300 (or MB&B 300); 2 electives numbered MCDB 250 or above (or 2 addtl core courses); 1 elective numbered MCDB 350 or above; 2 MCDB labs; *Biotechnology, Neurobiology, and Quantitative Biology concentrations (tracks)* – same as *B.A.* and *B.S.* degree programs, with a specific req (concentration (track) dependent) in place of one general elective

Senior requirement *B.A.* – MCDB 475 taken in senior year, or senior essay; *B.S.* – 2 consecutive terms of independent research in senior year, MCDB 485, 486; *B.S., intensive major* – MCDB 495, 496 in senior year

CONCENTRATIONS

In addition to the requirements for the *B.A.* degree or the *B.S.* degree programs, students interested in pursuing a concentration (previously referred to as a track) within the MCDB major must complete one required course and one elective from the list of approved courses as indicated. The difference between the standard major and the concentrations is the two required general electives which are more specific for the various concentrations. The laboratory requirement, special elective (MCDB 350 and above) and the senior requirement are the same as those for the *B.A.* degree or the *B.S.* degree programs. No substitutions are provided for the concentrations.

NEUROBIOLOGY CONCENTRATION

The Neurobiology concentration requires MCDB 320 and one elective course from BENG 410, CPSC 475, MCDB 250, 310, 315, 361, 415, 425, 430, 440, PSYC 376, or S&DS 101. Students should note that PSYC 110 is a prerequisite for many psychology courses but does not substitute as an elective in the Neurobiology track. Students interested in the Neurobiology concentration should consult an adviser for the track.

Neurobiology concentration advisers

J. Carlson, 206 YSB (432-3541)
 D. Clark, C148 YSB (432-0750)
 T. Emonet, C169 YSB (432-3516)
 P. Forscher, 120 YSB (432-6344)
 H. Keshishian, 228 YSB (432-3478)
 M. O'Donnell, 110 YSB (436-1934)
 W. Zhong, 225 YSB (432-9233)

BIOTECHNOLOGY CONCENTRATION

The Biotechnology concentration requires MCDB 370 and one elective course from MB&B 420, 421, 443, BENG 351, 352, 410, 435, 457, 463, 464, CENG 210, 411, 412L, CPSC 437, 445, 470, or 475. Students interested in the Biotechnology concentration should consult an adviser for the track.

Biotechnology concentration advisers

R. Breaker, 311 YSB (432-9389)
 C. Crews, 250 YSB (432-9364)
 F. Isaacs, 141 YSB (432-3783)
 K. Nelson, 137 YSB (432-5013)
 J. Wolenski, C112 YSB (432-6912)

QUANTITATIVE BIOLOGY CONCENTRATION

The Quantitative Biology concentration requires MCDB 330 and one elective course from MCDB 320, 361, 461, BENG 463, 467, CPSC 440, 475, MB&B 302, 435, 452, 523, PHYS 402, MATH 246, 251, or CPSC 475, 440. Students interested in the Quantitative Biology concentration should consult an adviser for the track.

Quantitative Biology concentration advisers

D. Clark, C148 YSB (432-0750)
 T. Emonet, C169 YSB (432-3516)
 D. Kankel, 111 YSB (432-3532)

For a summary of the requirements, see the Overview page.

FACULTY OF THE DEPARTMENT OF MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY

Professors Ronald Breaker, John Carlson, †Lynn Cooley, Craig Crews, Stephen Dellaporta, Thierry Emonet, Paul Forscher, †Mark Hochstrasser, Scott Holley, Vivian Irish, †Akiko Iwasaki, Douglas Kankel, †Paula Kavathas, Haig Keshishian, Mark Mooseker, Thomas Pollard, Anna Pyle, Joel Rosenbaum, †Hugh Taylor

Associate Professors Damon Clark, Joshua Gendron, Valerie Horsley, Farren Isaacs, †Megan King, †Kathryn Miller-Jensen, Weimin Zhong

Assistant Professors Shirin Bahmanyar, David Breslow, Nadya Dimitrova, Stavroula Hatzios, Yannick Jacob, Binyam Mogessie, Sigrid Nachtergaele, Michael O'Donnell, Josien van Wolfswinkel, Jing Yan

Professor Adjunct Robert Bazell

Lecturers †Meghan Bathgate, †Alexia Belperron, Francine Carland, †Surjit Chandhoke, Iain Dawson, †Seth Guller, Amaleah Hartman, Ronit Kaufman, Rebecca LaCroix, Thomas Loreng, †Elizabeth Luoma, Maria Moreno, Kenneth Nelson, †Aruna Pawashe, Joseph Wolenski

†A secondary appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

Music

Director of undergraduate studies: Anna Zayaruznaya (anna.zayaruznaya@yale.edu), 205 STOECK, 432-2996; yalemusic.yale.edu

The Department of Music offers introductory and advanced instruction in the history of music, the theory of music, composition, music technology, and performance. The Music major provides a general music program in the humanities, as well as preparation for graduate studies or for careers in music.

COURSES FOR NONMAJORS AND MAJORS

Introductory courses, numbered from 100 to 199, are open to all undergraduates and require no previous experience in music.

Qualified students, whether majoring in music or not, may offer up to four terms of instruction in performance for academic credit toward the 36-course-credit requirement for the bachelor's degree. Of these four course credits, only two may be applied to the major in Music. Auditions for lessons are held at the beginning of the fall term; students sign up at the School of Music auditions website. Students who audition for lessons are placed into one of three groups: (1) noncredit instruction for a fee; (2) lessons for academic credit at the intermediate level (MUSI 345), graded Pass/Fail; or (3) lessons for academic credit at the advanced level (MUSI 445), graded A-F. Only students with exceptional proficiency are placed into MUSI 445.

Students accepted for noncredit instruction are charged \$550 for ten hours of lessons per term or \$350 for six hours of lessons per term. The fees are added to the Student Financial Services bill and are not refundable after the first two weeks of lessons each term.

COURSE NUMBERING

Introductory courses are numbered from 100 to 199. Intermediate courses, numbered between 200 and 399, may require prerequisites or a familiarity with music notation. Advanced courses, numbered between 400 and 494, are intended for students who have completed intermediate courses in the relevant field. They are intended primarily for students majoring in music, but they may be elected by others who meet the stated prerequisites.

COREQUISITES AND LESSONS

Students taking MUSI 345 or 445 are required to enroll concurrently in a non-introductory music theory or music history course for two terms, or they must complete one term of the theory/history requirement before enrolling in MUSI 345 or 445 for the first time, and another before enrolling in MUSI 345 or 445 again. MUSI 345 is taken pass/fail; MUSI 445 and the corequisites are taken for a letter grade. Eligible corequisites include MUSI 110 or any course designated as Group I, III, or IV within the music major (i.e. courses numbered 200–219, 250–299, 300–319, 350–399, 400–419, 450–499).

PLACEMENT PROCEDURES

There is no longer a placement test for the music theory curriculum; instead we invite students to identify the right course for them by using our self-placement guide, and to consult with the course instructors.

REQUIREMENTS OF THE MAJOR

Thirteen courses are required, two intermediate courses and one advanced course in each of four groups, and the senior requirement. Group I (MUSI 200–219; 300–319; 400–419) includes music theory and technology courses focused on the materials and structures of musical works and repertoires. Group II (MUSI 220–249; 320–349; 420–449) includes composition, technology, and performance courses with a practical focus on techniques of artistic production. Group III (MUSI 250–274; 350–374; 450–474) includes lectures and seminars taking a research- and writing-based approach to the Western art-music tradition. Group IV (MUSI 275–299; 375–399; 475–494) includes lectures and seminars taking a research- and writing-based approach to popular or vernacular music or to music of non-Western traditions.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

Each student majoring in Music must satisfy the senior requirement by completing a senior essay, composition, or recital in MUSI 496, 497, 498, or 499.

The standard major Students must submit a completed Senior Project Form to the director of undergraduate studies (DUS) by the end of the course selection period in the term during which the project will be completed. The Senior Project Form, available in the departmental office, includes a brief description of the project and a timeline for completion. The form must be signed by the project's primary and secondary advisers, at least one of whom is a member of the faculty of the Department of Music.

The intensive major The intensive major is for students of high standing who are qualified to do sustained independent and original work in music research or in composition. Students wishing to elect the intensive major must register for the senior project in the fall term of their senior year (MUSI 497–499). A plan for progress must be included in the project proposal at the beginning of the fall term, specifying a deliverable end-of-term product with approximately the same scope as a one-term senior project. Upon satisfactory completion of this work, a student may be admitted to the intensive major, which consists of a second term of registration for the senior project (MUSI 497–499). The additional course for the intensive major is supplementary to the thirteen term courses that constitute the standard major.

ADVISING

Simultaneous B.A./M.A. program Undergraduates with exceptionally strong preparation in music history or music theory may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. Students may not enroll in Yale College for more than eight terms to qualify for the simultaneous award of both degrees. Declared majors in Music may apply for the program until the last day of classes in their fifth term of enrollment, if they have completed at least two graduate courses in the Department of Music, at least one

numbered 700 or higher, with grades of B+ or above, and if their overall grade average is A- or above. Applicants must demonstrate progress toward proficiency in a foreign language examined by the Department of Music.

Students in the simultaneous program fulfill the requirements for the intensive major in Music. They also take eight graduate courses in the Department of Music, with average grades of B+ or higher and grades of A or A- in at least two of the courses. They satisfy the Yale College requirements for the program (see Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor's and Master's Degrees”), and they pass a departmental examination in a modern foreign language.

B.A./M.M. program The Bachelor of Arts/Master of Music program is designed for students with outstanding abilities in performance who are also interested in a liberal arts education. Admission to the B.A./M.M. program is through acceptance into Yale College as well as a separate, successful audition through the School of Music, either before matriculation into Yale College or during the third year of the B.A. program. For details regarding the B.A./M.M. program, please consult the Yale School of Music online bulletin.

Students cannot accelerate the undergraduate program in the B.A./M.M. program.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 term courses numbered 200 or above (incl senior req)

Specific courses required None

Distribution of courses 2 intermediate courses and 1 advanced course from each Group I-IV

Senior requirement One-term senior essay, composition, or recital in MUSI 496-499

Intensive major Two-term senior essay or project in MUSI 497-499; additional course is supplementary to the thirteen course req

FACULTY OF THE DEPARTMENT OF MUSIC

Professors Kathryn Alexander (*Adjunct*), Richard Cohn, Daniel Harrison, Gundula Kreuzer, Richard Lalli (*Adjunct*), Ian Quinn (*Chair*), Gary Tomlinson, Michael Veal

Associate Professors Robert Holzer (*Adjunct*), Konrad Kaczmarek (*Adjunct*), Brian Kane, Markus Rathey (*Adjunct*), Braxton Shelley, Anna Zayaruznaya

Assistant Professors Ameera Nimjee, Jessica Pertiz, Lindsay Wright

Lecturers Phil Acimovic, Nathaniel Adam, Trevor Bača, Maiani da Silva, Daniel Egan, Grant Herreid, Annette Jolles, Sara Kohane, Ian MacMillen, Joshua Rosenblum, Wendy Sharp

Naval Science

Program adviser: Scott Ryan (scott.ryan@yale.edu), 55 Whitney Ave., 432-8223; nrotc.yalecollege.yale.edu

The Naval Reserve Officers Training Corps (NROTC) program educates young men and women for service as commissioned officers in the United States Navy (USN) or Marine Corps (USMC). NROTC develops future officers mentally, morally, and physically, and instills in them the highest ideals of duty and loyalty and the core values of honor, courage, and commitment. The Naval Science program prepares students to assume the highest responsibilities of command, citizenship, and government.

ACADEMIC REQUIREMENTS

The Naval Science curriculum includes courses on topics such as Navy and Marine Corps organization, at-sea navigation, leadership, naval history, amphibious warfare, engineering, and weapons systems. Courses emphasize development of professional knowledge and leadership skills, which are placed in the context of military service immediately following graduation from Yale College.

Students in the NROTC program enroll in one Naval Science course per term. Most Naval Science courses count for enrollment credit only; they do not count toward the thirty-six course credits required for the Yale bachelor's degree. NAVY 212 and NAVY 414 do count toward graduation credit. Some courses are required for both Navy and Marine option students, while others are specific to the branch of service. All NROTC students must also enroll in the Naval Science Laboratory each term.

Navy students must complete eight core curriculum courses offered by Yale College: two term courses in calculus to be completed by the sophomore year, two term courses in calculus-based physics (with laboratory) to be completed by the junior year, two term courses in English or equivalent writing courses, one term course in history or national security policy, and one term course in world culture or regional studies.

For Navy students, the usual sequence of Naval Science courses is:

First-Year	Sophomore	Junior	Senior
Introduction to Naval Science	Seapower & Maritime Affairs	Naval Engineering	Naval Operations
Navigation	Leadership & Management	Naval Systems	Leadership & Ethics

Marine students must complete three core curriculum courses offered by Yale College, including two term courses in English or equivalent writing courses, and one term course in history or national security policy.

For Marine Corps students, the usual sequence of Naval Science courses is:

First-Year	Sophomore	Junior	Senior
Introduction to Naval Science	Seapower & Maritime Affairs	Elective	Evolution of Warfare
Elective	Leadership & Management	Fundamentals of Maneuver Warfare	Leadership & Ethics

ADVISING AND APPLICATION TO THE PROGRAM

Application to the National Scholarship Program Eligible applicants must use the online application to complete and submit all the required information to apply for the NROTC scholarship. Applicants select either the Navy or Marine Corps option and scholarship recipients are appointed midshipmen in either the United States Naval Reserve (USNR) or United States Marine Corps Reserve (USMCR), as appropriate. Scholarship recipients are granted the compensation and benefits authorized by law and current policy for a total period not to exceed four years (forty months or fifty months with approved fifth year benefits). During this period, the United States government pays for college tuition, authorized academic fees, a textbook stipend, and a subsistence allowance, and provides uniforms or compensation in lieu. Upon conferral of a degree, graduates are commissioned into the Navy or Marine Corps for a minimum of five years of active duty service. Yale students who matriculate without a scholarship may apply for the National Scholarship program during the fall term of their first year.

Application to the College Program Students without a scholarship who are in their first or second year may apply for enrollment in the College Program and compete for two- or three-year scholarships. If selected for the two- or three-year Scholarship Program, students receive the same benefits as students in the National Scholarship Program for their remaining undergraduate studies. Upon conferral of a degree, graduates of the College Program are commissioned into the Navy or Marine Corps for a minimum of three years of active duty service. Yale students interested in the College Program may apply directly to the Yale University NROTC Unit.

FACULTY OF THE NAVAL SCIENCE PROGRAM

Professor Captain Ronald Withrow, USN (*Adjunct*)

Lecturers Commander Scott Ryan, USN; Captain Ratsamy May, USMC; LT Samantha Barszowski, USN; LT Dale Pettenski, USN; LT Ryan Buck, USN

Near Eastern Languages and Civilizations

Director of undergraduate studies: Kathryn Slanski
(kathryn.slanski@yale.edu); nelc.yale.edu

The major in Near Eastern Languages & Civilizations is an interdisciplinary liberal arts major with a long history at Yale. The Near East describes the very long civilizations of the region known today as the Middle East, including Northeast Africa. The program emphasizes analytic and reflective learning. Students acquire proficiency in languages and literatures, art and archaeology, and cultural and historical traditions as they study the Near East, whether of (ancient) Egypt and Mesopotamia; of late antiquity and Classical Islam; or of the contemporary moment, represented by modern Arabic, Hebrew, Persian, and Turkish.

The Near East is studied for its own intrinsic literary, historic, and artistic interest, as well as its cultural and historical legacies, which also open new ways of understanding the modern world. Near Eastern Languages and Civilizations majors go on to careers in government, foreign service, international finance, law, education, and even medicine and public health. The major also provides a strong foundation for graduate study and academic research.

Languages offered include: (modern) Arabic, Hebrew, Persian, and Turkish (including Ottoman Turkish); Classical Arabic and Classical Persian; and (ancient) Assyrian & Babylonian, Egyptian, Old Persian, Syriac, and Sumerian. Students with experience in any of the modern languages must take a placement test at the beginning of the fall term. See the department website for details.

All modern languages, as well as ancient Assyrian & Babylonian (Akkadian), and Egyptian, are offered in multi-year sequences and can be taken to fulfill the language requirement. The department also offers Advanced Language Certificates in Arabic, Hebrew, Turkish, as well as ancient Egyptian. Many majors undertake intensive language study abroad during the summer, and the language faculty advises students on recommended programs.

COURSE NUMBERING

Courses numbered NELC 001–099 are first-year seminars, with enrollments capped at 18. Courses in the NELC 100–199 range are introductory lecture courses, and NELC 200–299 are seminars with enrollment capped at 18. These courses have no prerequisites and are designed for students of any background or major to explore the Near East. Courses designated NELC 300–399 are more challenging courses and typically are seminars. Courses numbered NELC 400–499 are courses offered by visiting scholars or are related to the senior project.

REQUIREMENTS OF THE MAJOR

The major requires twelve term courses, including the senior requirement. Working with the director of undergraduate studies (DUS), students develop coherent programs of study in one of two concentrations.

Near Eastern Languages & Civilizations Concentration (depth) This concentration is for students who wish to focus *in depth* on a particular language and/or civilization, such as *ancient* Egypt or Mesopotamia; the *classical* Near East or medieval Islam;

or *modern* Near Eastern culture through Arabic, Hebrew, Persian, or Turkish. Contextualized through study of literature, religion, art and archaeology, and history, this concentration provides students the opportunity to explore a Near Eastern civilization through in-depth study of one or two Near Eastern languages and written texts in their original languages.

Requirements to earn the depth concentration are 6 term courses in one or two Near Eastern languages; one NELC Foundations course; four NELC electives, chosen in consultation with the DUS (no more than two may be counted from other departments/programs); and the senior requirement (see below).

Near Eastern Languages, Civilizations, and Culture Concentration (breadth) This concentration is suitable for students who wish to study Near Eastern languages and civilizations *more broadly*. It provides flexibility to study the Near East in its historical and cultural breadth, and to explore its long-lived civilizations over time or comparatively. Students in this concentration take a range of classes and design their course of study according to their specific interests, such as Near Eastern literature, history, religion, art and archaeology (material culture), or philosophy and science; or the study of the Near East in the ancient, medieval, or modern eras.

Requirements to earn the breadth concentration are 4 term courses in NELC languages; two NELC Foundations courses; five NELC electives, including one on the ancient Near East, one on the medieval Near East, and one on the modern Middle East (no more than three may be counted from other departments/programs); and the senior essay (see below).

Near Eastern Languages and Civilizations majors are encouraged to take related courses in other departments and programs to complement their interests and round out their intellectual formation. These typically include courses in Anthropology, Archaeology, Classics, Comparative Literature, Islamic Studies, Judaic Studies, History, History of Art, History of Science, Medicine and Public Health, Philosophy, and Religious Studies. Above all, complementary courses should be chosen according to the interests of the student and in consultation with the DUS or faculty advisor. If courses outside the department include substantial Near Eastern content and are relevant to the student's overall program of study, they may be approved at the discretion of the DUS toward the electives requirement for the major.

Credit/D/Fail No more than one Near Eastern Languages and Literatures elective taken Cr/D/Fail can be counted toward the major.

SENIOR REQUIREMENT

The senior requirement is an opportunity for students to design and execute an independent research project, bringing to bear the intellectual curiosity as well as philological and analytic skills the student has honed during their time at Yale. It is also a chance to be mentored by a member of the faculty who serves as advisor to the project, which typically culminates in an essay of about 25-35 pages (one-semester project) or 45-55 pages (year-long project). Conversations about the senior project should begin with the DUS in the fall of junior year, especially if the student plans to undertake summer research travel.

In rare occasions and *only* with advanced written agreement of the instructor and the DUS, a research paper for an upper-level seminar may be developed and expanded to satisfy the senior requirement. In such cases, the project must constitute work substantially beyond the requirements of the seminar paper.

Each year the DUS provides majors with resources, guidelines, and a timetable of deadlines for both the one-semester and year-long senior project. In addition, the DUS leads a bimonthly seminar for seniors to present work on their senior project and to exchange feedback with their peers in a supportive environment.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (including the senior req)

Distribution of courses *Near Eastern Languages & Civilizations concentration (depth)*—6 term courses of up to 2 Near Eastern languages; 1 Foundations course; and 4 electives; *Near Eastern Languages, Civilizations, and Culture concentration (breadth)*—4 term courses of 1 or more Near Eastern language courses; 2 Foundations courses; 5 NELC electives to include 1 ancient, 1 medieval, and 1 modern

Senior requirement NELC 492 and/or NELC 493

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Near Eastern Languages and Civilizations offers a Certificate of Advanced Language Study in Ancient Egyptian, Arabic, Hebrew, and Turkish. A certificate adviser, typically the DUS, advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of any of the certificates.

REQUIREMENTS FOR THE ARABIC, HEBREW, AND TURKISH CERTIFICATES

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With prior approval of the adviser, one advanced non-L5 Yale course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in

the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students are responsible for taking the necessary steps to ensure that those courses appear on their transcripts.

REQUIREMENTS FOR THE ANCIENT EGYPTIAN CERTIFICATE

Students seeking to earn the certificate are required to take four courses beyond the L3 level, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, an independent study language course, an advanced texts seminar, and/or a graduate seminar may count toward certification requirements. At the discretion of the certificate adviser, students may, with prior permission, substitute a maximum of two courses of credit-bearing academic study abroad.

FACULTY OF THE DEPARTMENT OF NEAR EASTERN LANGUAGES AND CIVILIZATIONS

Sarab Al Ani, Muhammad Aziz, John Darnell, Jonas Elbousty, Ozgen Felek, Benjamin Foster, Eckart Frahm, Shiri Goren, Agnete Lassen, Gregory Marouard, Jane Mikkelson, Nadine Moeller, Randa Muhammed, Dina Roginsky, Farkhondeh Shayesteh, Kathryn Slanski, Shawkat Toorawa, Kevin Van Bladel, Klaus Wagensohner, Harvey Weiss, Meryem Ezgi Yalcin, Orit Yeret.

Neuroscience

Directors of undergraduate studies: Damon Clark (neuroscience.dus@yale.edu) (MCDB), YSB C148; Steve Chang (steve.chang@yale.edu) (Psychology), Kirtland 310; neuroscience.yale.edu

Neuroscience aims to understand how the brain produces the mind and behavior, with the goal of advancing human understanding, improving physical and mental health, and optimizing performance. This entails a broad, interdisciplinary effort that spans from molecules to minds. At one end, biology, chemistry, and physics are improving our understanding of the molecular and cellular mechanisms of neuronal signaling and development. At the other end, psychology, psychiatry, and computer science link neural processes and systems to the mind and behavior. At all levels, the rich array of methods and data analysis depends on a strong foundation in the basic sciences, mathematics, statistics, and computer science.

PREREQUISITES

The foundational biology courses required of all Neuroscience majors are BIOL 101, 102, 103, and 104. All majors must also complete one of the following: PSYC 200, S&DS 103, 105, 230, 238.

PLACEMENT PROCEDURES

When declaring the major, students are encouraged to send a completed Neuroscience major worksheet to the department registrar (neuroscience.registrar@yale.edu) to help with advising. We encourage all majors to take the Human Brain (NSCI 160) and Neurobiology (NSCI 320) as early as possible, since these courses provide foundations for the NSCI curriculum and independent research.

REQUIREMENTS OF THE MAJOR

A minimum of 18.5 credits is required, including the prerequisites (4 courses for 3 credits), 15 lecture or seminar courses (which include the senior requirement), and one laboratory, as follows:

1. Two Neuroscience foundation courses, NSCI 160 and 320.
2. One Neuroscience lab (*YC NSCI: Neuroscience Lab*) chosen from NSCI 229L, 240, 258, 260, 270, 321L; PSYC 238.
3. Eleven electives from the following core groupings, with a minimum of: 2 from the Systems/Circuits/Behavior Core, 2 from the Molecular/Cellular/Biological Core, 1 from the Quantitative Core, 1 from the Computational Core, and 1 from the Basic Allied Core. No more than 2 credits may be taken from the Other Allied Core. Students may search—with the attributes indicated in each core grouping—for approved courses in YCS.

Systems/Circuits/Behavior Core (YC NSCI: Systems/Circuit/Behav): NSCI 340, 341, 346, 352, 355, 360, 440, 441, 442, 443, 445, 449, 479

Molecular/Cellular/Biological Core (YC NSCI: Molecular/Cell/Biol): NSCI 324, 325, 329, 420; MCDB 200, 202, 205, 210, 300, 310, 370, 450, 452; MB&B 300

Quantitative Core (YC NSCI: Quantitative): MATH 112, 115, 116, 120, 222, 225, 226, 230, 231, 244, 246, 247, 255, 256; ENAS 151; NSCI 324, 325; CPSC 202

Computational Core (YC NSCI: Computational): CPSC 100, 112, 201, 223, 323, 365, 452, 470, 475, 476; ENAS 130; PHYS 378; S&DS 123, 262, 361; NSCI 453

Basic Allied Core (YC NSCI: Basic Allied Core): PHYS 170, 171, 180, 181, 200, 201, 260, 261; CHEM 161, 163, 165, 167, 174, 175, 220, 221

Other Allied Core (YC NSCI: Other Allied): NSCI 141, 161, 419, 455; BENG 485; MCDB 250; CGSC 110; PSYC 110; one additional Neuroscience lab course from the list above

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the major, including prerequisites.

SENIOR REQUIREMENT

In addition to the course requirements described above, all students must satisfy a senior requirement undertaken during the senior year. All students must fill out a checklist of requirements and go over it with the undergraduate registrar by the spring term of the junior year.

B.S. degree program The B.S. degree program requires two course credits of empirical research, NSCI 490 and 491. These courses are only available to Neuroscience seniors and receive a letter grade. Students are expected to spend at least 10 hours per week in the laboratory, to complete written assignments, and to give a presentation. In addition to time in the lab, and as part of NSCI 490 and 491, students are expected to attend a semi-regular capstone seminar, to hear guest speakers and to discuss senior work progress with their peers and the directors of undergraduate studies (DUSes). Research can be conducted over original, archival, or consortium data sets. Written assignments include a short research plan due at the beginning of the fall term, a grant proposal due at the end of the fall term, and a final report due at the end of the spring term. Students should pursue the same research project for two terms, with the grant proposal guiding and serving as the background for the research and final report. Seniors are also required to present their research in the spring term at a poster session. Students should find a research laboratory during the term preceding the research. Yale College does not grant academic credit for summer research unless the student is enrolled in an independent research course in Yale Summer Session. To register for NSCI 490 and 491, students must submit a form and the research plan with bibliography, approved by the faculty research adviser and a DUS, by the end of the first week of classes.

B.A. degree program The B.A. degree program requires two course credits in nonempirical research, NSCI 480 and 481; or one credit in nonempirical research, NSCI 480 or 481, and one credit in empirical research, NSCI 490 or 491. These courses are only open to Neuroscience seniors and receive a letter grade. Under faculty supervision, for NSCI 480 or 481, students are required to conduct original research for at least 10 hours per week that does not involve direct interaction with data, such as developing a theory or conducting a meta-analysis to synthesize existing findings. A literature review without novel intellectual contribution is not adequate. Written assignments include a short research plan due at the beginning of the fall

term, a literature review or draft theoretical paper due at the end of the fall term, and a theoretical paper due at the end of the spring term. Seniors are also required to present their research in the spring term at a poster session. To register, students must submit a form and the research plan with bibliography, approved by the faculty adviser and a DUS, by the end of the first week of classes.

More detailed guidelines, forms, and deadline information is available on the program website.

ADDITIONAL INFORMATION

Independent research courses before senior year. The only independent research courses available to students prior to senior year are NSCI 470, 471. These courses are graded Pass/Fail and count toward the thirty-six credits required for the bachelor's degree, but they do not substitute for any NSCI major requirement, including the senior requirement. Independent research courses do not satisfy the lab requirement for the NSCI major.

ADVISING

Due to overlap in the major course requirements, the Neuroscience major should not be combined with a second major either in Molecular, Cellular and Developmental Biology or in Psychology.

Program advisers Each term, students should update their Neuroscience major worksheet and then meet with their assigned faculty adviser to discuss their schedule and review their worksheet. These documents should then be submitted to the Neuroscience registrar for DUS review and approval. For questions concerning credits for courses taken at other institutions, or courses not listed in Yale Course Search, students should contact the Neuroscience registrar.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites BIOL 101, 102, 103, and 104; and one of PSYC 200, S&DS 103, 105, 230, 238

Number of courses 18.5 credits (including prereqs and senior req)

Specific courses required 2 neuroscience foundation courses, NSCI 160 and 320

Distribution of courses *B.S. or B.A.* – 1 lab course; 11 electives including at least: 2 Systems/Circuits/Behavior Core courses, 2 Molecular/Cellular/Biological Core courses, 1 Quantitative Core course, 1 Computational Core course, 1 Basic Allied Core course, and no more than 2 Other Allied Core courses

Senior requirement *B.S.* – 2 empirical research courses, NSCI 490 and 491; *B.A.* – 2 nonempirical research courses, NSCI 480 and 481, or 1 empirical research course (NSCI 490 or 491) and 1 nonempirical research course (NSCI 480 or 481)

FACULTY OF THE NEUROSCIENCE MAJOR

Professors †Amy Arnsten (*School of Medicine, Psychology*), Ty Cannon (*Psychology*), John Carlson (*Molecular, Cellular, and Developmental Biology*), B. J. Casey (*Psychology*), Marvin Chun (*Psychology*), Paul Forscher (*Molecular, Cellular, and Developmental Biology*), Jutta Joormann (*Psychology*), Douglas Kankel (*Molecular, Cellular, and Developmental Biology*), Haig Keshishian (*Molecular, Cellular, and Developmental Biology*),

†John Krystal (*School of Medicine, Psychology*), Rajit Manohar (*Electrical Engineering*),
 †Linda Mayes (*School of Medicine, Psychology*), Greg McCarthy (*Psychology*), Laurie
 Santos (*Psychology*), †Dana Small (*School of Medicine, Psychology*), †Jane Taylor (*School
 of Medicine, Psychology*), Nick Turk-Browne (*Psychology*), Robert Wyman (*Molecular,
 Cellular, and Developmental Biology*)

Associate Professors †Alan Anticevic (*School of Medicine, Psychology*), Arielle Baskin-
 Sommers (*Psychology*), Abhishek Bhattacharjee (*Computer Science*), †Sreeranga
 Chandra (*School of Medicine, Molecular, Cellular, and Developmental Biology*),
 Steve Chang (*Psychology*), Damon Clark (*Molecular, Cellular, and Developmental
 Biology*), †Philip Corlett (*School of Medicine, Psychology*), Molly Crockett (*Psychology*),
 Thierry Emonet (*Molecular, Cellular, and Developmental Biology*), Avram Holmes
 (*Psychology*), †Hedy Kober (*School of Medicine, Psychology*), Smita Krishnaswamy
 (*Genetics*), †Ifat Levy (*School of Medicine, Psychology*), †James McPartland (*School of
 Medicine, Psychology*), Weimin Zhong (*Molecular, Cellular, and Developmental Biology*)

Assistant Professors Dylan Gee (*Psychology*), Maria Gendron (*Psychology*), Julia
 Leonard (*Psychology*), Samuel McDougale (*Psychology*), †John Murray (*School of
 Medicine, Physics*), Michael O'Donnell (*Molecular, Cellular, and Developmental Biology*),
 Priya Panda (*Electrical Engineering*), Robb Rutledge (*Psychology*), Ilker Yildirim
 (*Psychology*)

Lecturer Stephanie Lazzaro (*Psychology*)

†A joint appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

Persian and Iranian Studies Certificate

Certificate director: Samuel Hodgkin (samuel.hodgkin@yale.edu)

This certificate recognizes the work of undergraduates who combine the study of Persian language and literature with a wider engagement with the art, philosophy, religion, history, politics, and culture of the Persian-speaking world. Students seeking to earn the certificate will develop a strong sense of community with peers interested in this area of study. These students will typically fall into three categories: 1) non-humanities majors (and pre-meds) with a strong interest in Persian and Iranian studies; 2) social science and humanities majors in non-NELC departments wishing to formalize their particular focus on Iran or Persian culture; and 3) Persian heritage students and students of Turkish, South Asian, Armenian, Central Asian, or other post-Persianate cultural backgrounds, for whom the certificate provides a way for them to explore their heritage.

REQUIREMENTS

Students must successfully complete 5 course credits and attend 3 events. Events include, but are not limited to Iran Colloquium lectures, sessions of Persian Circle, or screenings of Persian-language films by the language program. Students submit a 1-2 page write-up about each event to the certificate director. Events will be announced through the Certificate e-mail list and will appear on the CMES events calendar.

Courses are drawn from a list of approved courses and must be taken for a letter grade of B or above. The 5 required courses are divided between 3 content courses and 2 language courses. Courses that do not appear on the approved list may be approved by permission of the certificate director.

The content courses are concerned with the art, philosophy, religion, history, politics, and culture of the Persian-speaking world, and are identified by the attribute "Persia & Iran Content" in Yale Course Search. It is preferable that only two of the content courses originate in the same department. Courses in premodern Iranian languages (e.g. Old Persian, Middle Persian, Soghdian) count as content courses. Many L5 courses are content-oriented and may count either as a content course or a language course.

To complete the language requirement, students must complete two courses in Persian language (L1-L5).

Graduate and professional school courses may count toward the certificate. No more than two course credits fulfilling the requirements of the Persian and Iranian Studies certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major.

Completion Procedure and Advising

Students should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the certificate director and the Registrar's Office. Submission of the

form, and approval from the certificate director, is necessary to ensure that the earned Certificate appears on student transcripts.

SUMMARY OF REQUIREMENTS

Number of courses 5 course credits

Distribution of courses 3 content courses and 2 language courses

Additional requirements attendance of 3 events, and submission of a 1–2 page write-up for each

Philosophy

Director of undergraduate studies: Daniel Greco (daniel.greco@yale.edu); (daniel.greco@yale.edu)philosophy.yale.edu

The Philosophy major prepares students to reflect critically and creatively on questions concerning the nature of things, the scope and limits of human understanding, and the principles of value and right action. The aim of the major is to address these questions wherever they arise, whether in the philosophical tradition, in other disciplines and practices, or in everyday life. Our courses are designed to encourage depth in thinking, rigor in argument, clarity in writing and speaking, and the widest possible view of whatever subject matter we take up.

COURSES FOR NONMAJORS AND MAJORS

Introductory philosophy courses, numbered 001–099 are First-Year Seminars and are only open to first-year students. They have no prerequisites. Courses numbered 100–199 are open to all students and have no prerequisites.

COURSE NUMBERING

Courses numbered 001–199 are introductory and have no prerequisites. Courses numbered 200–299 are intermediate. Some have prerequisites; others do not, and may be taken as a student's first course in philosophy, though such a student should consult the instructor first. In general, it is a good idea to take a broadly based course in any area of philosophy before taking a specialized course. Courses numbered 300–499 are advanced, and are taught as limited enrollment seminars. These courses are intended primarily for juniors and seniors, though other students may be admitted with the instructor's permission. Undergraduates should be sure they have enough background to take such a course, including previous work in the same area of philosophy.

PREREQUISITES

Prerequisite to the standard major are two introductory or intermediate philosophy courses. Prerequisite to the concentration in psychology are two introductory or intermediate courses in philosophy or psychology.

REQUIREMENTS OF THE MAJOR

The Philosophy curriculum is divided into three broad groups: history of philosophy; metaphysics and epistemology; and ethics and value theory. The group in which a course belongs is indicated in Yale Course Search (YCS). This information is found in the "course information" section of each course listing. Students can also search for courses satisfying a given group requirement in YCS by clicking the drop-down menu titled, "Any Course Information Attribute." Students have the following choices: YC Phil: Ethics & Value Theory, YC Phil: History of Philosophy, YC Phil: Metaphysics & Epistemology, as well as YC Phil: Logic and YC Phil: Intersctn PSYC/PHIL.

The standard major requires twelve term courses (including the prerequisites and the senior requirement) that collectively expose students to a wide range of philosophy and philosophers. In history of philosophy, majors are required to take (1) either PHIL 125 and 126 or both terms of Directed Studies (DRST 003, 004), and (2) an additional, third course in history of philosophy. Majors are encouraged to take PHIL 125 and 126 as early as possible; these courses may be taken in either order. Majors must also

complete two courses in metaphysics and epistemology, two courses in ethics and value theory, and a course in logic (such as PHIL 115), the last preferably by the fall of their junior year. Majors must also take two advanced seminars at the 300+ level (either or both of which can be counted toward one of the group requirements) and satisfy the senior requirement as described below.

All courses in Philosophy count toward the twelve-course requirement. With approval from the director of undergraduate studies (DUS), courses offered by other departments may be counted toward the major requirements, though no more than two such courses will normally be allowed.

Specific regulations for the group requirements are as follows:

1. Some introductory courses do not count toward any group requirement.
2. Courses automatically count toward the group under which they are listed in Yale Course Search (YCS). In rare cases, a course will be designated as counting toward a second group, although no one course can be counted toward two group requirements. Students may petition to have a course count toward a group other than the one under which it is listed, though the presumption will be against such petitions.
3. Courses taken in other departments and applied to the major will not normally count toward a group requirement. Students may petition for credit toward a group requirement, though the presumption will be against such petitions.

The psychology concentration The psychology concentration is designed for students interested in both philosophy and psychology. Majors in the concentration must take seven courses in philosophy and five in psychology, for a total of twelve, including the prerequisites and senior requirement. The seven philosophy courses must include (1) two courses in the history of philosophy, usually PHIL 125 and 126 or DRST 003 and 004, (2) a course in logic, such as PHIL 115, preferably by the fall of the junior year, (3) two seminars, one of which may be in the Psychology department, with the approval of the DUS, and (4) at least two courses at the intermediate or advanced level that bear on the intersection of philosophy and psychology, at least one of which must be a philosophy seminar. Courses satisfying (4) must be approved by the DUS. The five psychology courses must include PSYC 110 or its equivalent. Each major must also satisfy the senior requirement as described below.

Credit/D/Fail At most one class taken Credit/D/Fail can count towards the philosophy major. Courses taken Credit/D/Fail cannot fulfill any specific distribution requirements within the major – they cannot fulfill the area requirements, or the seminar requirement, or the senior requirement, or (on the psychology track) the intersection requirement. But if all those requirements are fulfilled with classes taken for a letter grade, then one of the remaining 12 total credits may be fulfilled with a class taken Credit/D/Fail.

SENIOR REQUIREMENT

The senior requirement is normally satisfied by completing a third philosophy seminar. Students taking a seminar to satisfy the senior requirement are expected to produce work superior in argument and articulation to that of a standard seminar paper. To this end, students taking a seminar for the senior requirement must satisfy additional

requirements, which may include (1) additional readings, (2) submission of a complete draft of the final paper by the eighth week of the term that will then be significantly revised, and (3) one-on-one or small-group meetings with the instructor to discuss class material, the additional readings, and drafts in preparation. The specific nature of these additional requirements will vary from seminar to seminar. Students planning to satisfy the requirement with a third seminar should express that intention to the instructor at the beginning of the term, so the instructor can explain the work that will be required.

In special cases, students may meet the senior requirement through either a one-term or a two-term independent project supervised by an instructor (PHIL 490, 491). Students must petition to fulfill the senior requirement through an independent project, and approval is not guaranteed. Applicants must submit a proposal to the DUS, in consultation with an appropriate supervisor, by the end of the term prior to beginning the independent study.

ADVISING

By default, advising in the philosophy department is done by the DUS. Juniors have the option of selecting an alternative adviser – which should be done by the first of October in the junior year – but all seniors are advised by the DUS. The adviser aids students in choosing courses.

Other majors involving philosophy Majors in Mathematics and Philosophy and in Physics and Philosophy are also available. Students interested in philosophy and psychology should also consider the major in Cognitive Science.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Standard major* – 2 intro or intermediate phil courses; *Psychology concentration* – any 2 courses in phil or psych

Number of courses 12 term courses, incl prereqs and senior req

Specific courses required *Standard major* – PHIL 125 and 126, or DRST 003 and 004; *Psychology concentration* – PSYC 110 or equivalent

Distribution of courses *Standard major* – 3 courses in hist of phil (incl PHIL 125 and 126, or DRST 003 and 004), 2 in metaphysics and epistemology, 2 in ethics and value theory, and 1 in logic; 2 phil sems at 300+ level; *Psychology concentration* – 7 courses in phil, as specified; 5 courses in psych (incl PSYC 110)

Substitution permitted *Standard major* – 2 related courses in other depts, with DUS permission

Senior requirement a third sem in phil, or a one- or two-term independent project (PHIL 490, 491)

FACULTY OF THE DEPARTMENT OF PHILOSOPHY

Professors David Charles, Stephen Darwall, Michael Della Rocca, Keith DeRose, Paul Franks, Tamar Gendler, John Hare, Verity Harte, Brad Inwood, Shelly Kagan, Joshua Knobe, Thomas Pogge, Scott Shapiro, Sun-Joo Shin, Steven Smith, Jason Stanley, Zoltán Szabó, Kenneth Winkler, Gideon Yaffe

Associate Professors Daniel Greco, John Pittard

Assistant Professors Robin Dembroff, Manon Garcia, Lily Hu

Physics

Director of undergraduate studies: S (nikhil.padmanabhan@yale.edu)arah Demers (sarah.demers@yale.edu), Thomas Mellon Evans Hall, Rm. 207, 56 Hillhouse Ave.; physics.yale.edu/academics/undergraduate-studies

The overarching goal of the physics program is to train students—majors and nonmajors alike—to think like physicists, the hallmarks of which include: striving for fundamental explanations that have broad predictive power; appreciating that quantitative analysis is necessary for proper understanding; simplifying physical situations to their essentials to enable the development of mathematical models to explain and predict experimental data; and comparing experimental data from the natural world to theory.

To achieve this goal, we offer courses for physics majors who intend to further their study of physics or any STEM field in graduate school, as well as those physics majors who intend to go into law, consulting, financial services, technology industries, teaching, or any number of fields. Many students enroll in our introductory courses as a compulsory requirement of their STEM major; to satisfy a requirement for admission into medical school; or because they appreciate the quantitative training and intrinsic value offered by a basic understanding of modern physics. The director of undergraduate studies (DUS) can help students prepare for graduate school in physics by recommending appropriate electives to supplement the core courses. Research experience (PHYS 469, 470, 471, and 472) is an important aspect of preparing for graduate school.

The department offers two majors in Physics: the B.S. and the B.S. intensive major. Students in either program acquire advanced training in physics, mathematics, and related topics through the core courses. They use electives to design individualized programs with more depth or breadth, depending on their interests. Both degree programs require some research experience. PHYS 469 and PHYS 470, introductory research courses, are open to all students. Juniors and seniors, as part of the senior requirement, are required to enroll in PHYS 471 and 472—one term for the B.S. degree and two terms for the B.S. degree, intensive major. Combined majors are available in Mathematics and Physics, Astrophysics, Physics and Philosophy, and Physics and Geosciences.

COURSES FOR NONMAJORS AND MAJORS

A guide to selecting physics courses is available to aid in course selection. Questions about placement should be addressed to the DUS.

Introductory courses with no calculus requirement Physics courses numbered 120 or below are for students with little or no previous experience in physics who do not plan to major in the natural sciences. Many of these courses fulfill the science and/or quantitative reasoning distributional requirements. These courses have no college-level mathematics requirement and do not satisfy the medical school requirement.

Introductory calculus-based lecture sequences

1. PHYS 170, 171 is aimed at students who are interested in the biological sciences or medicine. Knowledge of differential and integral calculus at the level of MATH 112

- or equivalent is a prerequisite. MATH 115 or (preferably) MATH 116 should be taken concurrently with PHYS 171. PHYS 170 is a prerequisite for PHYS 171.
- PHYS 180, 181 is aimed at students who plan to major in the physical sciences or engineering. Calculus at the level of MATH 112 is a prerequisite; MATH 115 and 120 should be taken concurrently. PHYS 180 or PHYS 200 is a prerequisite for PHYS 181.
 - PHYS 200, 201 is aimed at students with a strong background in mathematics and physics who plan to major in the physical sciences. Calculus at the level of MATH 115 is presumed; MATH 120 and either MATH 222, 225, or 226, which are generally taken concurrently.
 - PHYS 260, 261 is intended for students who have had excellent prior training in mathematics and a solid foundation in physics. One of MATH 120, ENAS 151, PHYS 301, or the equivalent should be taken concurrently with PHYS 260, 261. Students considering an alternative MATH course should check with the DUS in Physics.

Introductory laboratories Two different introductory laboratory sequences are offered: PHYS 165L, 166L, and PHYS 205L, 206L. Each of these laboratory courses earns one-half course credit. Students normally take the laboratory courses associated with the introductory physics sequence in which they are enrolled.

- PHYS 165L, 166L is an introductory laboratory sequence aimed at students interested in engineering, the life sciences, and medicine. Related lecture courses are PHYS 170, 171, and PHYS 180, 181.
- PHYS 205L, 206L is for students who plan to major in the physical sciences or engineering. Related lecture courses are PHYS 180, 181; PHYS 200, 201; and PHYS 260, 261. Students who take the lecture courses in their first year are advised to start this laboratory sequence with PHYS 205L in the spring of their first year or in the fall of sophomore year.

Advanced electives A series of 340-level electives explores special topics of interest to both majors and nonmajors. The electives are open to any student in Yale College who has completed a year of introductory calculus-based physics (PHYS 170, 171; or 180, 181; or 200, 201; or 260, 261). Physics courses more advanced than PHYS 290 count as electives for the major.

PREREQUISITES

B.S. degree program The prerequisites include an introductory lecture course sequence with a mathematics sequence equivalent to, or more advanced than, the corequisite of the physics sequence. The following options are appropriate: PHYS 170, 171 with MATH 112, 115; or PHYS 180, 181 with MATH 115, 120; or PHYS 200, 201 with MATH 120 and either 222 or 225 or 226; or PHYS 260, 261 with MATH 120, ENAS 151, PHYS 301, or equivalent. In addition, the laboratory sequence PHYS 205L, 206L or PHYS 165L, 166L is required. Students who take these physics and mathematics courses starting in their first year may satisfy the prerequisites by the middle of their sophomore year. Students who begin taking physics courses in their sophomore year may also complete either the standard or the intensive major. Students are advised to take mathematics courses throughout their first year at the appropriate level.

B.S. degree program, intensive major The prerequisites for the B.S. degree with an intensive major are the same as for the standard program.

REQUIREMENTS OF THE MAJOR

B.S. degree program Eight courses are required beyond the prerequisites, including the senior project. Students must take a mathematics course at the level of, or more advanced than, PHYS 301. Three courses at the core of the major, PHYS 401, 402, and either PHYS 439 or 440, involve advanced study of fundamental topics common to all branches of physics. PHYS 401 and 402 pertain to advanced classical physics (mechanics, statistical physics and thermodynamics, and electromagnetism), while the third, PHYS 439 or 440 covers quantum mechanics. PHYS 401 must be taken before PHYS 402, 439, or 440.

Three advanced elective courses are also required. Suitable advanced courses are numbered higher than PHYS 290, such as the advanced laboratory PHYS 382L, and 400-level courses in Physics. Students may also find suitable advanced courses in other departments in the sciences, engineering, and mathematics. Courses taken to satisfy these requirements must be approved by the DUS. In order to pursue their individual interests in sufficient depth, many students choose to take more than the required number of advanced courses.

B.S. degree program, intensive major Ten courses are required beyond the prerequisites, including the senior project. Students must take a mathematics course at the level of, or more advanced than, PHYS 301. Five courses at the core of the major involve advanced study of fundamental topics common to all branches of physics. Three of the courses pertain to advanced classical physics: mechanics (PHYS 410), statistical physics and thermodynamics (PHYS 420), and electromagnetism (PHYS 430). Two other courses incorporate quantum mechanics (PHYS 440 and 441). Because the ideas build progressively: PHYS 410 must precede PHYS 440; PHYS 430 and 440 must precede PHYS 441, and PHYS 440 must also precede PHYS 420.

Because experiment is at the heart of the discipline, the intensive major requires one term of advanced laboratory (PHYS 382L or equivalent) and at least two terms of independent research (PHYS 471, 472 or equivalent). One advanced elective course is required to complete the program. Suitable advanced courses are more advanced than PHYS 290 and include 400-level courses in Physics. Students may also find suitable advanced courses in other departments in the sciences, engineering, and mathematics. Courses taken to satisfy these requirements must be approved by the DUS. In order to pursue their individual interests in sufficient depth, many students choose to take more than ten advanced courses.

Credit/D/Fail courses Courses taken Credit/D/Fail may not be counted toward the requirements of either major, including prerequisites.

SENIOR REQUIREMENT

B.S. degree program The senior requirement for the standard B.S. degree is fulfilled by receiving a passing grade on a one-term research project in PHYS 471 or 472 or equivalent. One enrollment of PHYS 471 or 472 taken at any time during junior or senior year counts as the senior requirement for the Physics major. Students should consult the DUS for further information.

B.S. degree program, intensive major The senior requirement for the intensive major is fulfilled by receiving a passing grade on a two-term research project in PHYS 471 or 472. Two enrollments of PHYS 471 or 472 taken at any time during junior or senior year counts as the senior requirement for the intensive Physics major. Students may take either PHYS 471 or 472 two times or they can take each course one time. Students should consult the DUS for further information.

ADVISING

All Physics majors in the sophomore, junior, and senior classes must have their programs approved by the DUS. First-year students and undeclared sophomores who are interested in Physics or related majors are encouraged to meet with the DUS to discuss their questions and proposed programs.

For both the standard B.S. degree and the B.S. degree with an intensive major, students are advised to begin the program in their first year to allow the greatest amount of flexibility in course selection. It is possible, however, to complete either program in a total of six terms, as illustrated below.

A program for a student completing the Physics B.S. in three years might be:

First-Year or Sophomore	Sophomore or Junior	Senior
PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261	PHYS 206L	PHYS 439 or PHYS 440
PHYS 205L	PHYS 301	PHYS 471 or 472
Mathematics corequisites	PHYS 401	Two advanced electives
	PHYS 402	
	One advanced elective	

A program for a student completing the intensive major in three years might be:

First-Year or Sophomore	Sophomore or Junior	Senior
PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261	PHYS 206L	PHYS 382L
PHYS 205L	PHYS 301	PHYS 420
Mathematics corequisites	PHYS 410	PHYS 441
	PHYS 430	PHYS 471
	PHYS 440	PHYS 472
		One advanced elective

SUMMARY OF MAJOR REQUIREMENTS

B.S. DEGREE

Prerequisites PHYS 170, 171 or 180, 181 or 200, 201 or 260, 261, with appropriate math coreqs, as indicated; PHYS 205L, 206L or PHYS 165L, 166L

Number of courses 8 term courses beyond prereqs (incl senior req)

Specific courses required PHYS 401, 402, and either PHYS 439 or 440, as indicated

Distribution of courses PHYS 301 or other advanced math course; 3 advanced electives approved by DUS

Senior requirement PHYS 471 or 472 or equivalent

B.S. DEGREE, INTENSIVE MAJOR

Prerequisites PHYS 170, 171 or 180, 181 or 200, 201 or 260, 261, with appropriate math coreqs, as indicated; PHYS 205L, 206L or PHYS 165L, 166L

Number of courses 10 term courses beyond prereqs (incl senior req)

Specific courses required PHYS 410, 440, 441, 420, 430, as indicated; PHYS 382L or equivalent

Distribution of courses PHYS 301 or other advanced math course; 1 advanced elective approved by DUS

Senior requirement Two terms of PHYS 471 or 472

FACULTY OF THE DEPARTMENT OF PHYSICS

Professors †Charles Ahn, Yoram Alhassid, Thomas Appelquist, †Charles Bailyn, O. Keith Baker, Charles Baltay (*Emeritus*), Sean Barrett, †Joerg Bewersdorf, Helen Caines, †Hui Cao, Richard Casten (*Emeritus*), †Paolo Coppi, Sarah Demers, †Michel Devoret, †Thierry Emonet, †Marla Geha, Steven Girvin, Larry Gladney, Leonid Glazman, Walter Goldberger, Jack Harris, John Harris (*Emeritus*), Karsten Heeger (*Chair*), †Victor Henrich (*Emeritus*), †Joe Howard, Francesco Iachello (*Emeritus*), †Sohrab Ismail-Beigi, Steve Lamoreaux, †Andre Levchenko, Reina Maruyama, Simon Mochrie, Vincent Moncrief, Daisuke Nagai, †Priyamvada Natarajan, †Andrew Neitzke, †Corey O'Hern, Peter Parker (*Emeritus*), †Daniel Prober, Nicholas Read, †Peter Schiffer, †Robert Schoelkopf, †John Schotland, Ramamurti Shankar, Witold Skiba, †A. Douglas Stone, †Hong Tang, Paul Tipton, C. Megan Urry, †Frank van den Bosch, †Pieter van Dokkum, †John Wettlaufer, Michael Zeller (*Emeritus*)

Associate Professors †Damon Clark, †Michael Murrell, Nikhil Padmanabhan, David Poland, †Peter Rakich, Alison Sweeney

Assistant Professors Charles Brown, Meng Cheng, †Yu He, Eduardo Higino da Silva Neto, Benjamin Machta, Owen Miller, David Moore, Ian Moulton, †John Murray, Nir Navon, Laura Newburgh, Shruti Puri, †Diana Qiu

Senior Lecturers Sidney Cahn, Adriane Steinacker

Lecturers Mehdi Ghiassi-Nejad, Adrian Gozar, Caitlin Hansen, Stephen Irons, Rona Ramos

†A joint appointment with primary affiliation in another department.

See visual roadmap of the requirements.

Physics and Geosciences

Directors of undergraduate studies: S (dus.physics@yale.edu)arah Demers (dus.physics@yale.edu) (Physics), 209 Thomas Mellon Evans Hall, 56 Hillhouse Ave., 432-9950; Pincelli Hull (pincelli.hull@yale.edu) (Earth and Planetary Sciences), 111 KGL, 432-3167

The major in Physics and Geosciences applies fundamental physical principles to the study of the Earth and other planetary bodies, synthesizing concepts and methods from both the Physics majors and the Earth and Planetary Sciences majors.

PREREQUISITES

The prerequisites for the major include MATH 120 or its equivalent, PHYS 170, 171 or another introductory physics sequence, the associated physics laboratory sequence PHYS 205L, 206L, and a course in ordinary differential equations chosen from ENAS 194, MATH 246, or PHYS 301.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, the major requires twelve term courses (13 term courses if the EPS introductory course has an accompanying laboratory), including the senior project. At least four of these courses must be in Physics and at least six must be in Earth and Planetary Sciences. Students complete a two- or three-term advanced physics sequence: either PHYS 401 and 402, or PHYS 410, 420, and 430. They must also take basic quantum mechanics (PHYS 439 or PHYS 440) and one elective numbered PHYS 290 or above. Relevant classes in related departments may be substituted with the permission of the DUS in Physics. Required courses in Earth and Planetary Sciences include one introductory course numbered EPS 100–140, with any accompanying laboratory; one elective numbered EPS 200 or above; and four advanced electives from one of two EPS tracks: the Atmosphere, Ocean, and Climate track or the Solid Earth Science track. Relevant classes in related departments may be substituted with the permission of the DUS in Earth and Planetary Sciences. No elective course may count toward multiple requirements for the major.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Physics and Geosciences major, including prerequisites.

SENIOR REQUIREMENT

Students complete a two-term senior project on a topic that is appropriate for the combined major and acceptable to both the Physics and the Earth and Planetary Sciences departments. The project is undertaken in either PHYS 471, 472 or EPS 490, 491. In addition, students must present an oral report on their project to each department.

ADVISING

Interested students should consult the directors of undergraduate studies (DUSes) in Physics and in Earth and Planetary Sciences.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or equivalent; PHYS 170, 171 or above; PHYS 205L, 206L; 1 of ENAS 194, MATH 246, or PHYS 301

Number of courses At least 12 courses beyond prereqs, incl senior req

Specific courses required PHYS 401 and 402, or PHYS 410, 420, and 430; PHYS 439 or PHYS 440

Distribution of courses 1 elective numbered PHYS 290 or above; 1 intro course in EPS, with lab, as specified; 1 elective course numbered EPS 200 or above; 4 advanced courses in an EPS track, as specified

Substitution permitted Courses in related departments for PHYS elective and EPS electives with DUS permission

Senior requirement Senior project in PHYS 471, 472 or EPS 490, 491, on topic acceptable to both depts; oral report on project to both depts or equivalent

Physics and Philosophy

Directors of undergraduate studies: Sarah Demers (sarah.demers@yale.edu) (Physics), Daniel Greco (daniel.greco@yale.edu) (Philosophy)

PREREQUISITES

Prospective majors in Physics and Philosophy are advised to begin taking the prerequisites during their first year, and to take at least two of the required philosophy courses by the end of their sophomore year. Prerequisites for this major are as follows: mathematics through calculus at the level of MATH 120; any introductory physics lecture sequence numbered 170 or higher; PHYS 165L and 166L, or PHYS 205L and 206L.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, students take fourteen term courses, including the senior requirement. Seven courses in physics approved by the director of undergraduate studies (DUS) and numbered 295 or higher are required, including PHYS 301 or equivalent and either PHYS 439 or 440. Six courses in Philosophy or in History of Science, Medicine, and Public Health are required, including PHIL 125 and 126, one course in logic above the introductory level, and a philosophy seminar selected with the approval of the DUSes.

SENIOR REQUIREMENT

B.S. degree program Seniors must complete PHYS 471 and/or 472, only one of which may count toward the seven required physics courses.

B.A. degree program Seniors must complete one of the following: (1) PHIL 490 or 491 (senior essay); (2) PHIL 480 (tutorial) on an appropriate subject; (3) an appropriate philosophy seminar with the approval of the DUS in Philosophy.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120; PHYS 170, 171, or higher; PHYS 165L, 166L, or PHYS 205L, 206L

Number of courses 14 term courses beyond prereqs, incl senior req

Specific courses required PHYS 301 or equivalent; PHYS 439 or 440; PHIL 125, 126

Distribution of courses 7 physics courses numbered 295 or higher approved by DUS; 6 courses in PHIL or HSHM, incl 1 in logic above intro level and a PHIL sem, as specified

Senior requirement *B.S.* – PHYS 471 and/or 472 (only one of which may count toward the 7 required physics courses); *B.A.* – PHIL 490 or 491, PHIL 480 on appropriate topic, or approved PHIL sem

Political Science

Directors of undergraduate studies: Bryan Garsten (bryan.garsten@yale.edu) [Spring 2023]; Andrea Aldrich (andrea.aldrich@yale.edu) [Fall 2023]; 115 Prospect St., 432-5236; politicalscience.yale/edu

Political science addresses how individuals and groups organize, allocate, and challenge the power to make collective decisions involving public issues. The goal of the major is to enable students to think critically and analytically about the agents, incentives, and institutions that shape political phenomena within human society. The subfields of political philosophy and analytical political theory (which includes the study of both qualitative and quantitative methodology) support the acquisition of the lenses through which such thought skills can be enriched. The subfields of American government, comparative politics, and international relations, in turn, allow students to reinforce and refine those skills, while also promoting their application to a wide variety of contexts, whether contemporary or historical. Students may also construct interdisciplinary curricula, which allows them to apply the approaches of the discipline to a topic for which a more complete understanding also involves approaches gleaned from other disciplines.

Students in the Class of 2025 and previous classes With the approval of the director of undergraduate studies (DUS), the following changes to the requirements of the major may be fulfilled by students who declared their major under previous requirements.

REQUIREMENTS OF THE MAJOR

Students following the standard B.A. degree program must take twelve term courses. These courses include: at least two introductory courses (i.e. bearing numbers between 101 and 119); at least one course designated as belonging to the methodology and formal theory subfield; at least two non-introductory lectures designated as "core"; at least two classes in each of any two of the department's subfields (other than methodology and formal theory) – international relations, American government, political philosophy, and comparative politics; at least two seminars, including at least one during their senior year.

All students, regardless of their graduating year, may also take courses related to political science that are offered by other departments. Students who elect the standard program may petition to count up to two such courses toward the major. Students may routinely count Residential College Seminars taught by members of the Political Science faculty toward the major, and they may petition to count one Residential College Seminar taught by an instructor outside the department. Students who have completed Directed Studies may, with the approval of the director of undergraduate studies (DUS), count one term of DRST 005 or DRST 006 toward the major.

Students following the standard B.A. degree program, interdisciplinary concentration are allowed to identify and pursue an area of study that crosses conventional disciplinary and departmental boundaries. Examples of interdisciplinary concentrations include (but are not limited to) urban studies, health politics and policy, political economy, political psychology, or a focus on the politics of a given global region informed by the study of the history and society of that region. Students choosing an interdisciplinary concentration are required to take twelve term courses

toward the major. At least seven courses must be in the field of concentration. Of the courses counting toward the major outside of the field of concentration, at least two courses must be taken in each of any two of the department's five fields. As many as three courses taken in other departments may be counted toward the major, with the permission of the DUS. *Note:* students who choose the interdisciplinary concentration must fulfill the introductory course requirement, the core lecture requirement, the methodology and formal theory subfield requirement, and the seminar requirement as described for the standard degree program.

Students wishing to pursue the Political Science major with an interdisciplinary concentration must submit an application, which is due prior to the beginning of the November recess in the student's final year of enrollment. Students should also meet with the DUS to discuss their proposed program of study in their sophomore or junior year.

The intensive major The intensive major gives students an opportunity to undertake more extensive coursework and research for the senior essay than is possible in the standard major. Requirements for the intensive major are identical to those for the standard program or interdisciplinary concentration, with the following exceptions: (1) in the spring term of the junior year, intensive majors take PLSC 474 in preparation for writing a yearlong senior essay; (2) in the senior year, intensive majors fulfill the senior essay requirement by enrolling in the yearlong course sequence PLSC 490 and PLSC 493 (PLSC 490 also counts toward the senior seminar requirement); (3) a total of fifteen term courses is required.

Juniors wishing to pursue an intensive major must apply to the DUS. The application should contain: (1) the intensive major application form signed by a faculty adviser who has agreed to supervise the student for the final three terms of enrollment; (2) a plan of study that identifies the political science courses that will be taken in those three terms; and (3) a one-page description of the proposed senior essay.

Seminar requirement Students majoring in Political Science are required to take at least two seminars taught by members of the Political Science department, including at least one during the senior year.

Credit/D/Fail Students may count up to two lecture courses taken Credit/D/Fail toward the major, which will count as non-A grades for purposes of calculating Distinction in the Major. Seminars taken Credit/D/F will not count toward the major requirements, but will count as non-A grades for purposes of calculating Distinction in the Major.

SENIOR REQUIREMENT

Seniors in the major must complete a senior essay. The essay can be written either in one term or over both terms of the senior year. In order to graduate from Yale College, a student majoring in Political Science must achieve a passing grade on the senior essay. The senior requirement for the standard B.A. degree program with an interdisciplinary concentration is the same as for the standard program, with the provision that the essay must be written on a subject that falls within the field of concentration.

Senior essay The senior essay provides an appropriate intellectual culmination to the student's work in the major and in Yale College. The essay should ordinarily be

written on a topic in an area in which the student has previously done course work, and an effort should be made to demonstrate how the student's work relates to broader topics, issues, and approaches within the discipline of political science. It should rest on research that is appropriate to the subject matter, and should reflect an awareness of how the student's topic is connected to previous work within the discipline of political science. Essays are expected to be in the range of 25–30 double-spaced pages. At the beginning of the term in which the essay is written, students must have their senior essay topic approved by a faculty member who has agreed to advise them. Each student is expected to consult regularly with the seminar instructor or adviser and take the initiative in developing a plan of research, scheduling regular meetings, and submitting preliminary drafts for review.

One-term essays may be written either in a seminar or, with the approval of an adviser and the DUS, in PLSC 480. More extensive information about the senior essay can be found on the department website.

Yearlong senior essay Students who wish to undertake a more extensive research project than is possible in a single term may fulfill the senior essay requirement by enrolling in the yearlong course sequence PLSC 490 and 491. Both classes are offered in both terms, but must be taken in order. PLSC 490 also counts toward the senior seminar requirement. In the first term, students writing a yearlong senior essay develop a research prospectus for the essay and begin their research under the supervision of a member of the faculty who specializes in the area being investigated. In the second term, students complete the essay. Yearlong senior essays are expected to be substantially longer than a regular term paper. While there is no fixed length, they are normally at least fifty pages long.

Majors who wish to enroll in the yearlong senior essay must apply for admission in their junior year. By the appropriate date, students should submit to the office of the DUS: (1) the yearlong senior essay prospectus form signed by a faculty adviser who has agreed to supervise the student during both terms of the senior year; and (2) a one-page statement describing the research project. Due to space constraints in PLSC 490, it is expected that no more than fifteen students will be admitted each term.

Students in the Class of 2026 and subsequent classes have the option of choosing an honors track or a non-honors track. Senior essays of students seeking to fulfill the honors requirements may be either semester-long or year-long. Honors will be awarded to students who meet the standard for honors on their senior essay (as determined by a second reader appointed by the director of undergraduate studies) and who meet certain standards of achievement across graded coursework in the major as determined by the chair, the director of undergraduate studies, and the faculty. Senior essays of students not seeking to fulfill the honors requirements must be written within a seminar and will not be assigned to a second reader.

ADVISING

The DUS and other members of the department can provide advice about departmental requirements, options within the major, requirements of two majors, study abroad, and other matters related to the major. Majors must secure written approval of their course selections each term from the DUS. All subsequent changes in a student's major program must also be approved. Although advisers (beyond the DUS and the senior

essay adviser) are not formally assigned, students are encouraged to seek advice from other department faculty members who are knowledgeable about their fields of interest. Information on faculty interests can be found on the department website.

Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, “Simultaneous Award of the Bachelor’s and Master’s Degrees.” Interested students should consult the DUS prior to the sixth term of enrollment for specific requirements in Political Science.

STUDY ABROAD

Students who study in a junior term abroad program or at another university during the summer may, with the approval of the DUS, count up to two courses toward the major. Students who study in a junior year abroad program may, with the approval of the DUS, count up to four courses toward the major. Students may also petition to have non-Yale courses that were not taught in political science departments count toward the major. Pending approval of the DUS, these courses will count toward the maximum number of substitutions.

SUMMARY OF MAJOR REQUIREMENTS

B.A. DEGREE, STANDARD PROGRAM

Prerequisites None

Number of courses *Standard major*—12 term courses; *intensive major*—15 term courses

Distribution of courses 2 intro courses; 2 core lectures; 2 seminars (1 in senior year); 1 course in methodology and formal theory subfield; 2 courses in each of any two subfields (excluding methodology and formal theory subfield)

Substitution permitted 2 courses from other depts with DUS approval

Senior requirement 1-term senior essay in sem or in PLSC 480; or 2-term senior essay in PLSC 490, 491

Intensive major PLSC 474 in spring term of junior year; 2-term senior essay in PLSC 490, 493

B.A. DEGREE, INTERDISCIPLINARY CONCENTRATION

Prerequisites None

Number of courses *Standard major with interdisciplinary concentration*—12 term courses; *intensive major with interdisciplinary concentration*—15 term courses

Distribution of courses 7 courses in concentration: 2 intro courses; 2 core lectures; 2 seminars (1 in senior year); 1 course in methodology and formal theory subfield; outside of concentration: 2 courses in each of any two subfields

Substitution permitted 3 courses from other depts with DUS approval (2 courses from other depts with DUS approval for intensive major)

Senior requirement 1-term senior essay in sem or in PLSC 480; or 2-term senior essay in PLSC 490, 491; both options on subject within concentration

Intensive major PLSC 474 in spring term of junior year; 2-term senior essay in PLSC 490, 493 on subject within concentration

FACULTY OF THE DEPARTMENT OF POLITICAL SCIENCE

Professors Bruce Ackerman, Akhil Amar, Seyla Benhabib (*Emeritus*), Paul Bracken, David Cameron (*Emeritus*), Benjamin Cashore, Bryan Garsten, Alan Gerber, Jacob Hacker, Oona Hathaway, Daniel HoSang, Gregory Huber, Isabela Mares, David Mayhew (*Emeritus*), Gerard Padro i Miquel, Doug Rae (*Emeritus*), John Roemer, Susan Rose-Ackerman (*Emeritus*), Frances McCall Rosenbluth, Bruce Russett (*Emeritus*), Kenneth Scheve, James Scott (*Emeritus*), Jasjeet Sekhon, Ian Shapiro, Stephen Skowronek, Steven Smith, Milan Svolik, Peter Swenson, Edward Tufte (*Emeritus*), Ebonya Washington, Steven Wilkinson, Elisabeth Wood

Associate Professors Peter Aronow, Katharine Baldwin, Sarah Bush, Ana De La O, Alexandre Debs, H  l  ne Landemore, Nuno Monteiro, Kelly Rader

Assistant Professors Alexander Coppock, Allison Harris, John Henderson, Joshua Kalla, Sarah Khan, Christina Kinane, Egor Lazarev, Daniel Mattingly, Salma Mousa, Elizabeth Nugent, Giulia Oskian, Tyler Pratt, Didac Queralt, Lucia Rubinelli, Fredrik S  vje, Emily Sellars, Ian Turner

Senior Lecturers Boris Kapustin, Stephen Latham, David Simon

Lecturers Elizabeth Acorn, Andrea Aldrich, Paris Aslanidis, Leanna Barlow, Scott Bokemper, Federico Brandmayr, Andrew Bridy, Greg Collins, John Dearborn, John DeStefano, Amir Fairdosi, Michael Fotos, Karen Goodrow, Thomas Graham, Maria Jose Hierro, Jane Karr, Robin Landis, Mordechai Levy-Eichel, Joanne Lipman, Nicholas Lotito, Itumeleng Makgetla, Renata Mustafina, Nilakshi Parndigamage, Tiago Peterlevitz, Joan Ricart-Huguet, Alexander Rosas, Vishvini Sakthivel, Walter Shapiro, Gordon Silverstein, Daniel Tavana, Bonnie Weir, Jacob Weisberg, Graeme Wood, Lauren Young

See visual roadmap of the requirements.

Portuguese

Director of undergraduate studies: Kenneth David Jackson
(k.jackson@yale.edu); span-port.yale.edu

Portuguese is taught at Yale as part of the Department of Spanish and Portuguese.

The major in Portuguese is a liberal arts major intended to develop competence in the Portuguese language and to provide students with a comprehensive knowledge of the literatures and cultures of Portugal, Brazil, and African and Asian lands of Portuguese language or influence.

PREREQUISITES

Students begin the study of Portuguese with PORT 110, 125, or S112. After two years of Portuguese language study, or equivalent, students have sufficient proficiency to take advanced courses in Luso-Brazilian literature and culture.

The prerequisite for the major is PORT 130 or the equivalent.

PLACEMENT PROCEDURES

All students who have not yet taken Portuguese at Yale are expected to take the departmental placement test, with the exception of students who have no previous knowledge of Portuguese whatsoever. The departmental placement test covers reading, writing, speaking, and listening skills. See the department website for placement test times and details.

REQUIREMENTS OF THE MAJOR

The requirements of the Portuguese major consist of ten term courses beyond the prerequisites. Students must take at least five term courses in the literatures or cultures of the Portuguese world. In completing their programs, students may elect up to four courses in other languages and literatures, anthropology, history, or history of art, or from study abroad, that are related to their field of study and approved by the director of undergraduate studies (DUS).

SENIOR REQUIREMENT

All majors must present a senior essay. The essay is written in PORT 491 and/or 492. A maximum of two credits counts toward the major.

ADVISING

Juniors and seniors majoring in Portuguese may, with the permission of the instructor and the director of graduate studies, enroll in graduate courses in Portuguese.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite PORT 130 or equivalent

Number of courses 10 term courses beyond prereq (incl senior essay course)

Distribution of courses At least five term courses in literatures or cultures of the Portuguese world

Substitution permitted With DUS permission, up to 4 relevant courses from other depts or from study abroad

Senior requirement Senior essay (PORT 491 and/or 492)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

Certificate Director: Kenneth David Jackson (k.jackson@yale.edu)

The Department of Spanish and Portuguese offers a Certificate of Advanced Language Study in Portuguese. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses, all beyond the L4 level in Portuguese, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course, conducted in Portuguese, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The adviser may approve the substitution of one credit earned as part of a Yale or Yale-designated study abroad program and taught in Portuguese to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study.

FACULTY OF THE DEPARTMENT OF SPANISH AND PORTUGUESE

Professors Rolena Adorno, Roberto González Echevarría, Aníbal González, K. David Jackson, Noël Valis, Jesús R. Velasco (*Chair*)

Senior Lectors II Sybil Alexandrov, Margherita Tortora, Sonia Valle

Senior Lectors I María Pilar Asensio-Manrique, Mercedes Carreras, Ame Cividanes, Sebastián Díaz, María de la Paz García, María Jordán, Rosamaría León, Juliana Ramos-Ruano, Lissette Reymundi, Lourdes Sabé-Colom, Virginia Santos, Terry Seymour, María M. Vázquez

Lectors Carolina Baffi, Luna Nájera, Giseli Tordin

Psychology

Directors of undergraduate studies: Yarrow Dunham (yarrow.dunham@yale.edu), 205 K, 432-0699; psychology.yale.edu

Psychology is the scientific study of the mind, the brain, and human behavior. The Psychology department offers coursework and research opportunities in the fields of clinical, cognitive, developmental, neuroscientific, and social psychology. By studying psychology, students better understand human behavior, including who we are, how we do the things we do, and how we enhance our lives and society. The Psychology major provides a foundation for careers in education and research; law; medicine and public health; politics and public policy; and in business fields such as marketing, finance, and management.

COURSE NUMBERING

Courses in the department are organized so that they are best taken in several parallel sequences. Courses numbered from 120–190 and ending in a zero are core survey courses that introduce students to major areas of psychology and provide additional background for more advanced courses. These courses represent major content areas of psychology; students should sample broadly from them before specializing. Courses numbered from 200–209 focus on statistics. Courses numbered from 210–299 teach general methodology or data collection in various areas of psychology. Courses numbered from 300–399 are more advanced courses in a particular specialization. Senior seminars, whose enrollment is limited to no more than twenty students, are numbered from 400–489. These seminars are best taken once a student has appropriate background. Courses numbered from 490–499 are special tutorial courses that require permission of the adviser and the director of undergraduate studies (DUS).

PREREQUISITE

PSYC 110, a general survey course, is prerequisite to several 100-level and all 200-level and above courses. This prerequisite may alternatively be satisfied by a score of 5 on the Psychology Advanced Placement test or a score of 7 on the IB Psychology exam.

REQUIREMENTS OF THE MAJOR

Standard major The standard major in Psychology for both the B.A. degree program and the B.S. degree program requires twelve credits beyond PSYC 110, including the senior requirement. The difference between the B.A. and the B.S. degree programs is the senior requirement (see below).

1. Because psychology is so diverse a subject, every student is required to take two courses from the social science point of view in psychology and two from the natural science point of view in psychology. Listed below are examples of courses that fulfill these requirements. A complete list of courses, updated each term, may be found on Yale Course Search (YCS) by searching "Any Course Information Attribute." At least one from each group must be a course designated as Core in the course listings and below. Students are expected to take their two core courses as early as possible in the major, normally within two terms after declaring their major.

Social science core (YC PSYC: Social Science Core): PSYC 140, 150, 180

Social science: Search YCS for courses with the YC PSYC: Social Science designation.

Natural science core (YC PSYC: Natural Science Core): PSYC 120, 130, 135, 160

Natural science: Search YCS for courses with the YC PSYC: Natural Science designation.

2. Because statistical techniques and the mode of reasoning they employ are fundamental in psychology, a course in statistics (PSYC 200) is required, preferably prior to the senior year. A student may substitute S&DS 103 for PSYC 200 or may substitute an examination arranged with the instructor of PSYC 200 for the course requirement. Students may take the examination only one time, and an additional course in psychology should be taken if the examination substitutes for PSYC 200. A student who has taken S&DS 103 may not take PSYC 200 for credit. If approved in advance by the DUS a second course in statistics that focuses on advanced statistical techniques relevant for research in psychology can be counted towards the major as a PSYC elective.
3. To assure some direct experience in collecting and analyzing data, students must elect at least one research methods course, preferably prior to the senior year, in which research is planned and carried out. For students pursuing the BS degree, this course **must** be taken prior to the senior year. Courses numbered between 210–299 fulfill this research methods requirement.
4. Students may, with permission of the DUS, count up to three term courses in other related departments toward the major. Appropriate courses are rare and only approved when the course has substantial empirical psychology content. Students should consult with the DUS in Psychology about selecting outside courses and should not assume that a course will count prior to that consultation. Getting this approval in advance is highly recommended.

Students interested in research are encouraged to take an independent study course (PSYC 493) as early as the sophomore year. Students may also take PSYC 495 for one-half course credit of independent research per term with prior permission of the faculty adviser and the DUS. To obtain permission, download the tutorial form from the department website, and submit it by the seventh calendar day before classes begin. These independent study courses are graded P/F. No more than a total of three credits from PSYC 490–499 combined may count toward the major.

Neuroscience track Students with a major interest in neuroscience may wish to elect the neuroscience track. Such students are considered Psychology majors for whom the requirements have been modified to accommodate their interests, and to reflect the multidisciplinary nature of modern neuroscience and psychology. Given the broad nature of the field of neuroscience, students may wish to concentrate their studies in one area of the field (e.g., behavioral, cellular and molecular, cognitive, affective, social, clinical, or developmental). Interested students are encouraged to meet with the track adviser, Steve Chang (steve.chang@yale.edu). Majors in the neuroscience track meet with the track adviser at the beginning of each term in their junior and senior years.

Requirements for the neuroscience track are the same as for the standard major, with the additional requirements listed below. A complete list of courses, updated each term,

may be found on Yale Course Search (YCS) by searching "Any Course Information Attribute."

1. Two terms of introductory biology are required for the major, BIOL 101-104. Students who have scored 5 on the Advanced Placement test in Biology or scored 7 on the IB Biology exam may place out of these courses.
2. Students must take PSYC 160 or 170 and a data-collection course (YCS attribute: YC PSYC: NSCI Track Rsrch Mthds) chosen from PSYC 230, 238, 250, 258 or 270. PSYC 229L, 260, or MCDB 320 may substitute for the PSYC 160 or 170 requirement, or MCDB 320 and 321L may substitute for PSYC 229L or 260, but not both. If MCDB 320 is substituted for a Psychology course, it cannot be counted as one of the two advanced science courses outside the department (see item 4 below).
3. As required for the standard major, students in the neuroscience track must take two social science courses, at least one of which must be designated as Core in the course listings. Students in the neuroscience track must also take a course from the natural science list in addition to the courses specified in item 2 above.
4. At least two advanced science courses (YCS attribute: YC PSYC: NSCI Track Adv Scie) must be chosen from Molecular, Cellular, and Developmental Biology and Ecology and Evolutionary Biology courses numbered 200 and above that deal with human and/or animal biology; recommended courses include MCDB 200, 202, 205, 210, 250, 300, 315, 320, E&EB 220, 225, and 240. Certain courses outside of these departments may also meet the advanced science requirement, including BENG 350, 421, CPSC 475, MB&B 300, 301, 420, 435, 443, 452, MATH 222, 225, 230, 231, and 241. Other courses may qualify for this requirement with permission of the neuroscience track adviser. Laboratory courses do not count toward the advanced science requirement. Students should note that many advanced science courses have prerequisites that must be taken first.

Credit/D/Fail No more than two term courses taken Credit/D/Fail may be applied toward the major; no 200-level course taken Credit/D/Fail may be applied toward the major.

SENIOR REQUIREMENT

Standard major Majors are required to earn two course credits from courses numbered PSYC 400–499. At least one of these courses (excluding PSYC 490–495, which can only be taken P/F) must be taken during the senior year, for which a student must write a substantial final paper (a minimum of 5,000 words) and receive a letter grade. The B.A. degree is typically awarded to students who conduct a nonempirical literature review during senior year. There are no restrictions in the research format for the B.A. The B.S. degree is awarded to students who conduct empirical research through PSYC 499 during senior year. An empirical research project normally includes designing an experiment and collecting and analyzing the data. Students pursuing the B.S. degree will want to identify a faculty advisor well in advance of the semester in which they intend to complete their senior essay.

Neuroscience track The senior requirement for the neuroscience track is the same as for the standard major, except that the two required course credits from PSYC 400–499 must have neuroscience content (Consult YCS for courses with the YC PSYC: NSCI

Track Senior Sem designation). Students pursuing the B.S. degree in the track must carry out a neuroscientific empirical project in PSYC 499 and must be supervised by a faculty member within the neuroscience area of the Psychology department. Students who wish to work with an affiliated faculty member studying neuroscience outside the department must obtain permission from the neuroscience track adviser. Students pursuing the B.S. degree will want to identify a faculty advisor well in advance of the semester in which they intend to complete their senior essay.

Distinction in the Major To be considered for Distinction in the Major, students must submit a senior essay to the Psychology department at least one week before the last day of classes in the term when the course used for the senior essay is taken. Senior essays that are submitted after the deadline will be subject to grade penalties. Senior essays considered for Distinction in the Major are graded by a second reader and the essay adviser.

ADVISING

Schedules for all majors must be discussed with, and approved by, the DUS or the adviser for the neuroscience track in Psychology. For questions concerning credits for courses taken at other institutions or at Yale but outside the Department of Psychology, students should consult with the DUS. For questions concerning the neuroscience track, students should consult with the adviser for the neuroscience track in Psychology.

Computer Science and Psychology major The interdepartmental major in Computer Science and Psychology may be considered by students with interests lying squarely between the two disciplines. See Computer Science and Psychology for more information.

SUMMARY OF MAJOR REQUIREMENTS

STANDARD MAJOR

Prerequisite PSYC 110

Number of courses 12 courses beyond prereq (incl senior req)

Specific course required PSYC 200 or S&DS 103

Distribution of courses *B.A.* or *B.S.* – 2 social science courses and 2 natural science courses, as specified; 1 course numbered PSYC 210–299

Substitution permitted For PSYC 200, S&DS 103 or exam arranged with instructor; up to 3 relevant courses in other depts, with DUS permission

Senior requirement *B.A.* – 1 course credit from PSYC 400–489 or 499 taken during senior year; 1 additional course credit from PSYC 400–499; *B.S.* – PSYC 499 taken during senior year; 1 additional course credit from PSYC 400–499

NEUROSCIENCE TRACK

Prerequisite PSYC 110

Number of courses 12 courses beyond prereq (incl senior req); same as for the standard major with the additional requirements listed below

Specific courses required BIOL 101–104 unless students place out; PSYC 160 or 170; PSYC 200; PSYC 230, 238, 250, 258 or 270.

Distribution of courses *B.A.* or *B.S.* – 2 social science courses and 1 natural science course, as specified; at least 2 advanced science courses, as specified

Substitution permitted MCDB 320 or PSYC 229L or 260 may substitute for PSYC 160 or 170; or MCDB 320 and 321L may substitute for PSYC 229L or 260; S&DS 103 or exam arranged with instructor for PSYC 200

Senior requirement *B.A.* – 1 course credit from PSYC 400–489 or 499 with neuroscience content taken during senior year; 1 additional course credit from PSYC 400–499 with neuroscience content; *B.S.* – PSYC 499 taken during senior year, with neuroscience content in a research project; 1 additional course credit from PSYC 400–499 with neuroscience content

FACULTY OF THE DEPARTMENT OF PSYCHOLOGY

Professors Woo-kyoung Ahn, John Bargh, Tyrone Cannon, B. J. Casey, Marvin Chun, Margaret Clark, Melissa Ferguson, Jutta Joormann, Frank Keil, Joshua Knobe, Gregory McCarthy, Jennifer Richeson, Peter Salovey, Laurie Santos, Brian Scholl, Nick Turk-Browne

Associate Professors Arielle Baskin-Sommers, Steve Wohn Chang, Molly Crockett, Yarrow Dunham, Avram Holmes

Assistant Professors Dylan Gee, Maria Gendron, Julian Jara-Ettinger, Julia Leonard, Sam McDougle, Robb Rutledge, Ilker Yildirim

Lecturers Jennifer Hirsch, Stephanie Lazzaro, Kristi Lockhart, Mary O'Brien, Matthias Siemer

See visual roadmap of the requirements.

Religious Studies

Director of undergraduate studies: Travis Zadeh, (travis.zadeh@yale.edu) 420 York Street, 432-6532; religiousstudies.yale.edu

Religious Studies offers a curriculum of challenging coursework that explores and critically analyzes religious traditions and systems of value. The many diverse courses delve into the history and meaning of rituals, canonical and non-canonical texts, and theological and social categories and how they have been shaped by and construct institutions, habits, hierarchies, and collectives. The study of religion probes the organization of society, gender roles, global affairs, war, violence, terrorism, and conflicting orthodoxies. Multiple disciplinary lenses and methodological approaches inform and shape the field, including: anthropology, history, philosophy, philology, psychology, and sociology. Courses on religious practices and formations span the globe over the course of history, from antiquity until the present day. The curriculum also addresses competing value systems that circulate in pop culture and politics, with studies of fundamentalism, spirituality, secularism, atheism, and consumerism.

The Department of Religious Studies is particularly known for its promotion of scholarly research by undergraduates. The tight cohort of majors have the unique opportunity to work closely with leading scholars of the field. The curriculum enables majors to acquire the linguistic, philosophical, and historical acumen necessary for in-depth research projects during their senior year. While courses normally have no prerequisites, some advanced seminars may require the permission of the instructor. The multidisciplinary nature of Religious Studies makes it attractive both for students seeking two majors and for those seeking to delve deep into a field of study as it relates broadly to the humanities.

REQUIREMENTS OF THE MAJOR

The Religious Studies major requires twelve term courses, to include a core of five courses, a junior seminar (RLST 490), a two-term senior essay (see below) and four electives. Religious Studies majors develop specialized areas of expertise as they plan a coherent program in consultation with the director of undergraduate studies (DUS) and other members of the faculty.

Core requirement A core of five courses in Religious Studies is required of all majors and should be selected in consultation with the DUS. These courses should originate in the Religious Studies department and carry a RLST subject code. One of the core courses must be an introductory course, numbered 001–199; another must introduce breadth into the student's core area of study; the remaining three courses must form a cohesive cohort of courses leading students to the area of expertise upon which they write their senior essay.

Electives The four elective courses are designed to complement a student's area of expertise. Collectively they should form the basis for advanced work in the major conducted during the senior year. These electives can be taken either within or beyond the Department of Religious Studies. They can comprise language study, topics and methods from other disciplines, or further advanced coursework within the department. Through these electives, students develop expertise in methods, regions, historical periods, or bodies of literature that inform their area of study and their work

for the senior essay. Students pursuing a double major or an outside certificate may count up to two courses taken for the fulfillment of their other major or certificate toward the elective requirement in Religious Studies.

SENIOR REQUIREMENT

Students must write a senior essay under the supervision of a faculty adviser in the student's area of concentration. In selecting a senior essay topic, students normally choose a subject on which they have completed coursework before commencing the senior year. The essay counts as two term courses toward the major and is taken in both terms of the senior year. The student should begin choosing a senior essay topic during the second term of the junior year, and early in the first term of the senior year must submit a Statement of Intention approved by a faculty adviser and the DUS. The senior essay courses, RLST 491 and 492, include research and writing assignments as well as colloquia in which seniors present and discuss their research. Students submit at least ten pages of the essay to the DUS by the last day of classes in the first term in order to receive a grade of "satisfactory" for that term.

ADVISING

Students majoring in Religious Studies who plan to do graduate work in the subject are strongly encouraged to study the languages that they will need for their graduate programs.

Courses in the Divinity School Some Divinity School courses may count toward the major, with permission of the DUS. Divinity School faculty are eligible to advise senior essays. Information about courses and faculty may be found in the Divinity School online bulletin.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior req)

Specific course required RLST 490

Distribution of courses 5 core RLST courses to include: 1 intro course, 1 breadth course, 3 related core courses; 4 electives, as described and with DUS permission

Substitution permitted Divinity School courses, with DUS permission

Senior requirement Senior essay (RLST 491, 492)

FACULTY OF THE DEPARTMENT OF RELIGIOUS STUDIES

Professors Stephen Davis, Carlos Eire, Steven Fraade, Paul Franks, Bruce Gordon, Philip Gorski, Frank Griffel, John Hare, Noel Lenski, Nancy Levene, Kathryn Lofton, Ivan Marcus, Laura Nasrallah, Sally Promey, Eliyahu Stern, Shawkat Toorawa, Travis Zadeh

Associate Professors Maria Doerfler, Eric Greene, Zareena Grewal, Noreen Khawaja, Hwansoo Kim, Todne Thomas

Assistant Professors Supriya Gandhi, Sonam Kachru

Senior Lecturers John Grim, Margaret Olin, Mary Evelyn Tucker

Lecturers Jimmy Daccache, Stephen Latham

Russian

Director of undergraduate studies: Claire Roosien (claire.roosien@yale.edu);
language coordinator: Irina Dolgova, (irina.dolgova@yale.edu) HQ 538, 320 York
Street, 432-1307; slavic.yale.edu

The major in Russian offered by the Department of Slavic Languages and Literatures acquaints students with Russian literature and culture, develops students' appreciation of literary values and skill in literary analysis, and gives them a basic competence in Russian. For an area major in Russian studies, see Russian, East European, and Eurasian Studies, an interdisciplinary program administered by the Department of Slavic Languages and Literatures.

PLACEMENT PROCEDURES

Students who have previously studied Russian formally or informally are required to take the Russian placement exam. This brief oral exam helps determine which Russian course best fits each student's background. Contact the Russian language coordinator, Irina Dolgova (irina.dolgova@yale.edu), to schedule the oral placement exam or for information about preregistration. She may be reached via email or at 432-1307.

PREREQUISITES

Prerequisite to the major is second year Russian, RUSS 140, 142, 145, or S140. The department offers three sequences of language courses to fulfill the prerequisite: either (1) RUSS 110, 120, 130, 140, or (2) RUSS 125, 145 or (3) courses for heritage speakers, RUSS 122, 142. Prospective majors should complete the prerequisites by the end of their sophomore year or accelerate their course of study by taking summer courses or studying abroad. While completing the prerequisite, students are encouraged to begin fulfilling requirements of the major that do not presuppose advanced knowledge of Russian by taking courses in Russian history and Russian literature in translation.

REQUIREMENTS OF THE MAJOR

In addition to the prerequisite, the major in Russian requires eleven term courses, which must include the following (some courses may fulfill more than one requirement):

1. Third-year Russian: RUSS 150 and 151.
2. Fourth-year Russian: RUSS 160 and 161.
3. Two terms of Russian literature in translation, one in 19th-century or earlier Russian literature and one in 20th-century or later Russian literature. Russian First-Year Seminars and courses numbered 200 or higher may fulfill this requirement.
4. One content course in which Russian is the language of instruction (RUSS 170–190).
5. One course in Russian, East European, or Eurasian history or social sciences.
6. RUSS 490 or 491. The senior essay is the intellectual culmination of the student's work in the major. All primary sources used in the essay must be read in Russian.

If the language proficiency is met without coursework, these course requirements must be fulfilled through additional term courses to bring the overall total to 11 term courses.

A Yale summer program in Russian culture may be used to fulfill the requirements, with DUS approval.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT

All majors write a senior essay (RUSS 490 or 491), an independent project carried out under the guidance of a faculty member. By the end of the junior year, students should declare their general topic and arrange for a faculty adviser, in consultation with the DUS. Students planning to conduct summer research for the senior essay, especially if abroad, should contact the DUS early in the spring semester of the junior year and apply for fellowships. By the first day of the reading period of the term prior to the term of the senior essay (RUSS 490 or 491), majors submit a proposal to the adviser (up to two pages double spaced). A draft of at least ten pages of the text of the essay, or a detailed outline of the entire essay, is due to the adviser by the midterm of RUSS 490 or 491. The senior essay takes the form of a substantial article, no longer than 13,000 words, excluding footnotes and bibliography. The final essay is due on the first day of the reading period of the term the student is enrolled in RUSS 490 or 491. A member of the faculty other than the adviser grades the essay.

Students pursuing two majors need to fulfill the senior requirement of both majors. If the second major allows, students may enroll in both RUSS 490 and 491 and write an essay longer than a single-term essay. In this case, students count the second term of the Russian senior essay as their twelfth course in the Russian major.

ADVISING

Courses in the Graduate School are open to qualified undergraduates with permission of the instructor and of the director of graduate studies. Course descriptions are available at the office of the DUS.

STUDY ABROAD

Students majoring in Russian are strongly encouraged to spend a summer or a term studying in the Russian Federation under the auspices of programs approved by the DUS. Language courses, as well as RUSS S241, S242, and S243, taken during the summer or during a term in Russia in approved programs may substitute for certain advanced Russian courses at Yale. Students interested in studying abroad should consult the DUS well before their junior year. Students can apply for FLAS and Fox fellowships to support their travel.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite RUSS 140, 142, 145, S140, or placement exam

Number of courses 11 term courses beyond prereq (incl senior essay)

Specific courses required RUSS 150, 151, 160, 161

Distribution of courses 1 course in 19th-century or earlier Russian literature in translation, as specified; 1 course in 20th-century or later Russian literature in translation, as specified; 1 content course taught in original language, as specified; 1 course in Russian, East European, or Eurasian history or social sciences, as specified

Substitution permitted Yale summer program in Russian culture (RUSS S241, S242, or S243) for electives

Senior requirement Senior essay (RUSS 490 or 491)

CERTIFICATE OF ADVANCED LANGUAGE STUDY

Certificate Director: Claire Roosien (claire.roosien@yale.edu)

The Department of Slavic Languages and Literatures offers a Certificate of Advanced Language Study in Russian. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. Students should take L5 content courses only after they have completed RUSS 151, Third-Year Russian II. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 course, conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one "language across the curriculum" (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure those courses appear on their transcript.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Those students considering fulfilling the requirements to earn a Certificate should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the form, and approval from the Certificate Director, is necessary to ensure that the earned Certificates appears on student transcripts.

FACULTY OF THE DEPARTMENT OF SLAVIC LANGUAGES AND LITERATURES

Professors Edyta Bojanowska (*Slavic Languages and Literatures*), Katerina Clark (*Comparative Literature, Slavic Languages and Literatures*), John MacKay (*Film & Media Studies, Slavic Languages and Literatures*)

Associate Professor Marijeta Bozovic (*Slavic Languages and Literatures*), Molly Brunson (*Slavic Languages and Literatures*)

Assistant Professors Jinyi Chu (*Slavic Languages and Literatures*), Claire Roosien (*Slavic Languages and Literatures*), Nari Shelekpavev (*Slavic Languages and Literatures*)

Senior Lectors II Irina Dolgova (*Slavic Languages and Literatures*), Constantine Muravnik (*Slavic Languages and Literatures*), Julia Titus (*Slavic Languages and Literatures*)

Senior Lectors I Krystyna Illakowicz (*Slavic Languages and Literatures*), Anastasia Selemeneva (*Slavic Languages and Literatures*), Olha Tytarenko (*Slavic Languages and Literatures*)

See visual roadmap of the requirements.

Russian, East European, and Eurasian Studies

Director of undergraduate studies: Claire Roosien
(claire.roosien@yale.edu); language coordinator: Irina Dolgova
(irina.dolgova@yale.edu), HQ 538, 320 York St.; slavic.yale.edu

The major in Russian, East European, and Eurasian Studies, administered by the Department of Slavic Languages and Literatures, offers an interdisciplinary approach to the study of a broad region: Russia, Ukraine, Belarus, the Caucasus, and central Asia; Poland, Hungary, the Czech and Slovak Republics, and other areas in east central Europe; and the Balkans. Students majoring in RSEE may concentrate exclusively on Russian Studies, or on East European or Eurasian Studies. The major is appropriate for students considering careers in international public policy, diplomacy, or business, and is also suited to students wishing to continue academic work.

PLACEMENT PROCEDURES

Students who have previously studied Russian formally or informally are required to take the Russian placement exam. This brief oral exam helps determine which Russian course best fits each student's background. Contact the Russian language coordinator, Irina Dolgova (irina.dolgova@yale.edu), to schedule the oral placement exam or for information about preregistration. She may be reached via email or at 432-1307. Entering first-year students who have some knowledge of Czech or Polish should contact Krystyna Illakowicz (krystyna.illakowicz@yale.edu) (Polish) or Karen von Kunes (karen.vonkunes@yale.edu) (Czech) to arrange to take a brief placement examination.

PREREQUISITES

Russian Studies concentration Completion of Second-Year Russian (RUSS 140, 142, 145 or S140) or placement exam.

East European Studies or Eurasian Studies concentration Two semesters of the first-year sequence in an East European or an Eurasian language or a placement exam.

REQUIREMENTS OF THE MAJOR

Students select one of three concentrations to complete the requirements for the major in Russian, East European, and Eurasian Studies. A full understanding of these areas demands knowledge of its languages and so students are encouraged to learn more than one language.

Russian Studies concentration Twelve term courses, including the senior requirement, are required for the Russian Studies concentration. Students must take two courses in Russian, East European, or Eurasian history; one RSEE-area focused course in the social sciences, such as those found in anthropology, economics, sociology, political science, global affairs, and other disciplines of social science; one course in Russian, East European, or Eurasian literature or culture, selected in consultation with the director of undergraduate studies (DUS); and the Senior Essay (RSEE 490 or 491). To fulfill the language requirement students must demonstrate a proficiency in Russian by completing RUSS 150 and 151 or by passing an equivalency exam. A maximum of five language courses may be counted toward the major. If language proficiency is met without coursework, the course requirements must be fulfilled through additional term

courses to bring the overall total to twelve courses. Electives are selected in consultation with the DUS and may include RUSS 160 and 161, a content course taught in Russian at the 170–190 level, or courses in other East European or Eurasian languages at the second-year level or above.

East European Studies or Eurasian concentration Eleven term courses, including the senior requirement, are required for the East European and the Eurasian concentrations. The requirements are the same as for the Russian Studies concentration, excluding the language requirements. To fulfill the language requirement students must demonstrate a proficiency in either an East European or Eurasian language (such as Czech, Polish, Romanian, Bosnian–Serbian–Croatian, Hungarian, Ukrainian, or those languages taught through the Shared Course Initiative) by completing the third-year level (4 term courses) of the chosen language or by passing an equivalency exam. The remaining two courses are chosen in consultation with the DUS. If language proficiency is met without coursework, the course requirements must be fulfilled through additional term courses to bring the overall total to eleven courses.

Credit/D/Fail Courses taken Credit/D/Fail may not count toward the requirements of the major.

SENIOR REQUIREMENT

Every major must write a one-term senior essay in RSEE 490 or 491 either in the fall or spring. By the end of the junior year, students should declare their general topic and confirm a faculty adviser, in consultation with the DUS. Students planning to conduct summer research for the senior essay, especially if abroad, should contact the DUS early in the spring term of the junior year and apply for fellowships. With the permission of the DUS and senior essay adviser, a student may choose a two-semester senior essay project in the RSEE major, which must be approved by the end of the junior year.

The senior essay takes the form of a substantial article, no longer than 13,000 words, excluding footnotes and bibliography. Students present to their senior essay adviser a detailed prospectus of the essay, with bibliography, prior to midterm in the semester before the essay is due and a draft of at least ten pages, or a detailed outline of the entire essay, by the last day of reading period in the term before they enroll in RSEE 490 or 491. A member of the faculty other than the adviser grades the essay.

Students pursuing two majors need to fulfill the senior requirement of both majors. If the second major allows, students may enroll in both RSEE 490 and 491 and write a longer essay than for the single-term essay. In this case, students count the second term of the RSEE senior essay as their 13th (Russian Studies concentration) or 12th (East European or Eurasian concentration) course in Russian, East European, and Eurasian Studies.

ADVISING

Qualified students may elect pertinent courses in the Graduate School with the permission of the instructor, the director of graduate studies, and the DUS.

Graduate work The European and Russian Studies program does not offer the simultaneous award of the B.A. and M.A. However, students in Yale College are eligible to complete the M.A. in European and Russian Studies (with concentration in

Russia and eastern Europe) in one year of graduate work. Students interested in this option must complete eight graduate courses in the area by the time they complete the bachelor's degree. Only two courses may be counted toward both the graduate degree and the undergraduate major. Successful completion of graduate courses while still an undergraduate does not guarantee admission into the M.A. program. Students must submit the standard application for admission to the M.A. program.

STUDY ABROAD

Students should be aware of opportunities for study and travel in Russia, eastern Europe, and Eurasia. The DUS can provide information on these programs and facilitate enrollment. Students who spend all or part of the academic year in the region participating in established academic programs usually receive Yale College credit, and are strongly encouraged to take advantage of study abroad opportunities during summers or through the Year or Term Abroad program. Students wishing to travel abroad as part of the major should consult the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Russian Studies concentration*—RUSS 140, 142, 145 or S140; *East European and Eurasian concentrations*—two courses of first-year sequence in East European or Eurasian language

Number of courses *Russian Studies concentration*—12 term courses beyond prereqs (incl senior req); *East European and Eurasian concentrations*—11 term courses beyond prereqs (incl senior req)

Specific courses required *Russian Studies concentration*—RUSS 150 and 151 or equivalency exam

Distribution of courses *All concentrations*—2 courses in RSEE history; 1 RSEE-area focused course in the social sciences, as specified; 1 course in Russian, East European, or Eurasian literature or culture, in consultation with DUS; *Russian Studies concentration*—up to 5 language courses and/or electives in consultation with DUS to fulfill total course requirement; *East European Studies and Eurasian Studies concentrations*—third-year level in East European or Eurasian language or equivalency exam; remaining electives in consultation with DUS to fulfill total course requirement

Senior requirement Senior essay (RSEE 490 or 491)

FACULTY ASSOCIATED WITH THE MAJOR

Professors Sergei Antonov (*History*), Edyta Bojanowska (*Slavic Languages and Literatures*), Paul Bushkovitch (*History*), Katerina Clark (*Comparative Literature, Slavic Languages and Literatures*), John Gaddis (*History*), John MacKay (*Slavic Languages and Literatures, Film & Media Studies*), Timothy Snyder (*History*)

Associate Professors Marijeta Bozovic (*Slavic Languages and Literatures, Film and Media Studies, Women's, Gender, & Sexuality Studies*), Molly Brunson (*Slavic Languages and Literatures*), Jason Lyall (*Political Science*), Douglas Rogers (*Anthropology*), Marci Shore (*History*)

Assistant Professors Jinyi Chu (*Slavic Languages and Literatures*), Marta Figlerowicz (*Comparative Literature, English*), Claire Roosien (*Slavic Languages and Literatures*), Nari Shelekpayev (*Slavic Languages and Literatures*)

Senior Lectors II Irina Dolgova (*Slavic Languages and Literatures*), Constantine Muravnik (*Slavic Languages and Literatures*), Julia Titus (*Slavic Languages and Literatures*)

Senior Lecturer I Krystyna Illakowicz (*Slavic Languages and Literatures*), Olha Tytarenko (*Slavic Languages and Literatures*)

Lecturer I Anastasia Selemeneva (*Slavic Languages and Literatures*)

See visual roadmap of the requirements.

Science

Yale College offers several interdepartmental course sequences for first-year students through the First-Year Seminar Program. In these courses, students encounter current research at Yale and in the broader scientific community across a wide range of scientific fields. The courses intend to develop skills necessary to understand, write, and present research in these areas. Students also identify a Yale research mentor and prepare an independent grant proposal to prepare for summer research. Application information is available on the First-Year Seminar website.

School of the Environment

For information about Yale College course offerings related to the environment, see Environmental Studies.

The five-year B.A. or B.S./M.E.M. or M.E.Sc. degree program The B.A.–B.S./M.E.M. or M.E.Sc. degree program offers Yale College students the opportunity to earn a bachelor's degree from Yale College and an M.E.M. or M.E.Sc. degree from the Yale School of Environment (YSE) in five years.

Undergraduate requirements During four years of Yale College enrollment, students may complete any standard major. The required academic preparation for the five-year joint degree program is outlined on the YSE website. Generally, students are expected to complete eight courses that are substantially equivalent to YSE courses. Such courses must be relevant to the YSE degree being sought and might include upper-level YC courses, courses that are cross-listed between YSE and YC, or graduate or professional school courses. It is highly recommended that applicants complete undergraduate coursework in the following areas: ecology or ecosystems, physical sciences, social sciences, and microeconomics before applying.

Master's program requirements By satisfying the eight course undergraduate requirement prior to YSE enrollment, students in the five-year M.E.M. program will, upon graduation, have completed coursework equivalent to the regular M.E.M. requirements. These include attendance at the Summer Training Modules (MODS); enrollment in the fall "Perspectives" course for all first-year M.E.M. students; satisfying the requirements of all Foundational Knowledge courses, and an approved capstone course. Students admitted to the five-year program during their senior year are encouraged to take a gap year before attending YSE. Gap year plans must be communicated to the YSE Admissions Office.

The M.E.Sc. degree is intended to provide students with a deeper disciplinary focus than the M.E.M. All students pursuing a M.E.Sc. degree must have an advisor in place before applying to YSE. The intended YSE faculty advisor must provide a letter as part of the student's application stating their agreement to become the prospective student's YSE advisor. The specific plan to meet the requirements of the M.E.Sc. are to be worked out with a student's advisor, however most continue with deeper research of the subjects undertaken as part of their senior thesis requirement in Yale College.

Admission requirements Students apply to the B.A.–B.S./M.E.M. and M.E.Sc. program in the fall term of the senior year or in the two years immediately following graduation. Applications are submitted through the Yale School of the Environment's application system. Questions about admissions should be directed to the YSE Office of Admissions at admissions.yse@yale.edu. Further information about the program may be viewed on the YSE website.

School of Global Affairs

For information about Yale College course offerings related to global affairs, see Global Affairs.

The five-year B.A.–B.S./M.P.P. degree program The B.A.–B.S./M.P.P. degree program in Global Affairs offers Yale College students interested in the field of global affairs the opportunity to earn a bachelor's degree from Yale College and a M.P.P. degree from the Jackson School of Global Affairs in a five-year joint program.

Undergraduate requirements In their four years of Yale College enrollment, students complete a standard Yale College major. So long as students are on track to complete their major and degree requirements, as stipulated by Yale College, students may count up to 4 Jackson School approved course credits toward their M.P.P. degree.

Master's program requirements Students accepted into the program must complete a total of 12 course credits, including Jackson's core courses. At least 2 of those core courses must be taken during the senior year at Yale College. It is also required that students demonstrate proficiency in a modern language (L4) and complete an approved summer internship or project. Students must maintain a grade average of High Pass with at least two Honors grades. All students must complete Jackson's non-credit leadership and ethics training workshop, which takes place in August the week prior to the beginning of their fifth year. During the fifth year, students are in full-time residence at the Jackson School of Global Affairs and must complete at least 8 course credits.

Admission requirements Students apply to the B.A.–B.S./M.P.P. program in the spring term of the junior year. Applicants must complete an application form and submit all undergraduate transcripts, two letters of recommendation (at least one from an instructor in a Yale course), one personal statement, and approval by the dean of the student's residential college. Applications are submitted online through the Jackson School of Global Affairs. Questions about admissions should be directed to Assistant Dean, Asha Rangappa (asha.rangappa@yale.edu).

Further information about the program may be viewed on the Jackson School of Global Affairs website.

School of Public Health

For information about Yale College course offerings related to health, see Global Health Studies.

The five-year B.A.–B.S./M.P.H. degree program The B.A.–B.S./M.P.H. degree program in Public Health offers Yale College students interested in the field of public health the opportunity to earn a bachelor's degree from Yale College and an M.P.H. degree from the Yale School of Public Health (YSPH) in a five-year joint program.

Undergraduate requirements During four years of Yale College enrollment, students complete any standard major. Four of the thirty-six course credits required for the bachelor's degree are typically taken at YSPH in partial fulfillment of the M.P.H. degree requirements. Students may take additional YSPH courses while enrolled in Yale College, but no more than four course credits earned in the professional schools may be applied toward the bachelor's degree. Two Yale College courses selected from an approved list may be counted as electives toward the M.P.H. degree requirements.

Students accepted into the B.A.–B.S./M.P.H. program typically take the following courses at the School of Public Health while enrolled in Yale College: EPH 505, Biostatistics in Public Health; EPH 507, Social Justice and Health Equity; EPH 508, Foundations of Epidemiology and Public Health; EPH 510, Health Policy and Health Care Systems; and EPH 513, Major Health Threats: Ethics and Practice.

During the summer between the fourth and fifth years, students complete a public health internship.

Master's program requirements Students accepted into the program affiliate with one of seven departments or programs at the School of Public Health; this affiliation determines the primary adviser and the specific requirements for the five-year program. During the fifth year, students are in full-time residence at the School of Public Health to complete their remaining coursework and master's thesis.

Admission requirements Students apply to the B.A.–B.S./M.P.H. program in the fall term of the junior year. Successful candidates present a verified commitment to improving the health of the public and evidence of quantitative skills. Two terms each of college-level mathematics, science, and social science courses are recommended, although some of these courses can be completed after applying to the program. Additional qualifications may be required by particular departments or programs. Applications are submitted through the School of Public Health's application service, SOPHAS Express, and include transcripts, SAT scores, two letters of recommendation (at least one from an instructor of a Yale course), and a personal statement. Questions about admissions should be directed to Mary Keefe (mary.keefe@yale.edu).

Further information about the program may be viewed on the YSPH website.

Sociology

Director of undergraduate studies: Emily Erikson (emily.erikson@yale.edu); sociology.yale.edu

Sociology provides the theoretical and empirical foundation for understanding how societies function and how they change over time. Sociologists are interested in the causes and consequences of processes such as the social construction of groups and identity, the evolution of culture, intersubjective meanings, intergroup relations, and hierarchies and social norms. They conduct research on individual behavior and outcomes such as educational attainment, jobs and careers, religious commitment, and political involvement; interpersonal processes such as intimate relationships, sexuality, social interaction in groups, and social networks; the behaviors of organizations and institutions; the causes and consequences of group differences and social inequality; and social change at the societal and global level.

The Sociology major provides both a solid foundation for students interested in careers in the social sciences and a strong background for a variety of professions in which knowledge about social processes and how societies work is relevant. Many recent graduates have gone on to law school, medical school, or graduate programs in public health, business, education, urban planning, criminology, and sociology. Others work in finance, consulting, publishing, marketing, city planning, teaching, research, and advocacy.

The Sociology department offers six undergraduate pathways leading to the B.A. degree: (1) the standard major focuses on sociological concepts, theories, and methods; (2) the concentration in economy and society focuses on the cultural frameworks, relationships, and social institutions that give rise to markets and shape economic behavior; (3) the concentration in health and society emphasizes social processes as they affect health and medicine; (4) the concentration in data and society studies methods of analysis; (5) the concentration in inequality, race, and society considers the dimensions of how discrimination shapes society; and (6) the student-designed program combines sociology with a concentration in a different subject area. Students interested in the major are encouraged to contact the director of undergraduate studies (DUS) early in their academic careers to discuss potential options.

COURSE NUMBERING

Courses in Sociology are divided by level, with introductory courses numbered from 001–149, courses in sociological theory from 150–159, courses in sociological methods from 160–169, intermediate courses from 150–299, advanced courses in the 300s, and individual study and research courses in the 400s.

PREREQUISITE

There are no prerequisites for the Sociology major. Completing either a first-year seminar or one introductory course by the end of the sophomore year is recommended.

REQUIREMENTS OF THE MAJOR

Students in the standard major get broad exposure to the sociological imagination, methods, and substantive areas of inquiry. Students are provided with theory and methods used to diagnose and resolve social problems, understand and analyze social

processes, and describe and investigate collective behavior and its determinants.

Requirements for the standard major include the following:

1. Thirteen term courses in sociology (including the senior requirement). At least one must be an introductory Sociology course, but no more than two introductory courses may count toward the total.
2. Two courses in sociological theory (SOCY 151 and 152)
3. Two courses in sociological methods, normally completed by the end of the junior year: SOCY 160 and one additional methods course drawn from the social sciences.
4. The senior requirement

Concentration: Economy and Society Students in the Economy and Society concentration gain a broad understanding of the social dimensions of economic behavior, including the relational dimensions of market interactions, the relationship between the state and markets, religious and cultural effects, valuation processes, social networks, and the causes and consequences of inequality and discrimination in markets. Requirements for the concentration include the following:

1. Thirteen term courses in sociology (including the senior requirement). At least one must be an introductory Sociology course or a substitute approved by the DUS, but no more than two introductory courses in any department or program may count toward the total. Up to four courses relevant to the concentration (i.e. economic processes and/or their social dimension) may be drawn from outside the Sociology department with approval from the DUS. ECON 121 and 125 count toward the four courses from outside the department.
2. One course in sociological theory (SOCY 151 or SOCY 152)
3. One course in research design (SOCY 160)
4. One intermediate or advanced course in microeconomics (e.g. ECON 121 or 125)
5. At least two intermediate or advanced courses on inequality or economic sociology (e.g. SOCY 234, 314, 321, or other)
6. The senior requirement, integrating research on markets, businesses, economic behavior, or inequality

Concentration: Health and Society Students in the Health and Society concentration gain a broad understanding of how factors such as socioeconomic inequality, demographic processes, neighborhood environments, cultural norms, and social networks affect health and medical care. Students explore the fields of medical sociology, stratification, demography, and network science. The core courses in the concentration satisfy the social science requirements of premedical programs while also providing a solid foundation for students interested in public health, health policy, and global health. Requirements for the concentration include the following:

1. Thirteen term courses in Sociology (including the senior requirement). At least one must be an introductory Sociology course or a substitute approved by the DUS, but no more than two introductory courses in any department or program may count toward the total. Up to five courses relevant to the concentration may be drawn from outside the Sociology department with approval from the DUS. BIOL 101-104, GLBL 121, ECON 170, S&DS 103, S&DS 105, and any Math course count toward the five courses from outside the department.

2. SOCY 126 or SOCY 127, the gateway courses for the concentration (or other similar course, with approval of DUS)
3. One theory course (SOCY 151 or SOCY 152)
4. A course in statistics (SOCY 162, S&DS 103, S&DS 105, or GLBL 121, or a higher-level statistics course approved by the DUS)
5. One course in research design (SOCY 160), usually completed in spring of junior year.
6. In order to build a broad base of interdisciplinary knowledge on health, students may take up to five course credits from outside the Sociology department, with approval from the DUS. It is recommended that students select at least one course credit from the following: BIOL 101, 102, 103, 104; MATH 112 or higher-level MATH course; ECON 170.
7. Two intermediate or advanced Sociology seminars relevant to the concentration
8. The senior requirement, integrating sociology with health and medicine

Concentration: Data and Society Students in the Data and Society concentration gain a broad understanding of the methods used to analyze systematic features of social behavior and the wide range of possible sources that can be used to research social patterns. This concentration focuses on methods of analysis, such as social networks, computational sociology, statistics, computational modeling, natural language processing, and others, but students are expected to also expose themselves to substantive areas of research to gain insight in the application of these methods to social problems. Requirements for the concentration are the following:

1. Thirteen term courses (including the senior requirement). At least one must be an introductory Sociology course or a substitute approved by the DUS, but no more than two introductory courses in any department or program may count toward the total. Up to four courses relevant to the concentration may be drawn from outside the Sociology department with approval from the DUS. GLBL 121 and S&DS 130 count toward the four courses from outside the department.
2. SOCY 100 or 130, the gateway courses for the concentration (or other similar course with approval of DUS)
3. One theory course (SOCY 151 or 152)
4. One course in research design (SOCY 160), usually completed in spring of junior year
5. One introductory course in statistics (e.g. SOCY 163, S&DS 130, GLBL 121)
6. One intermediate or advanced course in statistics (e.g. SOCY 580, 581)
7. Two additional quantitative methods courses
8. Two intermediate or advanced courses in areas of sociological interest (courses other than methods)
9. One semester of independent study as a research assistant on a sociological topic, ideally with Sociology faculty
10. The senior requirement, integrating data-intensive approaches to social science

Concentration: Inequality, Race and Society Students in the Race, Inequality, and Society concentration gain a broad understanding of the ways in which inequality, race, and various forms of discrimination shape society. Inequality will be considered on

numerous dimensions including race, ethnicity, gender, sexual orientation, and religion. Requirements for the concentration are the following:

1. Thirteen term courses (including the senior requirement). At least one must be an introductory Sociology course or a substitute approved by the DUS, but no more than two introductory courses in any department or program may count toward the total. Two courses relevant to the concentration (i.e. economic processes and/or their social dimension) may be drawn from outside the Sociology department with approval from the DUS. GLBL 121 and S&DS 130 count toward the two courses from outside the department.
2. SOCY 144, the gateway course for the concentration (or other similar course with approval of DUS)
3. One theory course (SOCY 151 or 152)
4. One research design course (SOCY 160), usually completed in spring of junior year.
5. One course in statistics (e.g. SOCY 162, S&DS 103, or GLBL 121)
6. Five elective courses related to race or inequality, up to two from outside the department
7. One advanced seminar in race and/or inequality
8. The senior requirements, integrating research on race and/or inequality

Concentration: Student-Designed This program allows students to combine the study of sociology with the study of another discipline or substantive area and to create a program that satisfies their own interests and career plans. By the beginning of the junior year, participants in the self-designed program are expected to consult with the DUS in order to obtain approval for their course of study.

1. Thirteen term courses (including the senior colloquium). At least one must be an introductory Sociology course or a substitute approved by the DUS, but no more than two introductory courses in any department or program may count toward the total.
2. Up to four courses relevant to the concentration (i.e. economic processes and/or their social dimension) may be drawn from outside the Sociology department with approval from the DUS. The courses outside Sociology must constitute a coherent unit alone and form a logical whole when combined with the Sociology courses.
3. Two courses in sociological theory (SOCY 151 and 152)
4. Two courses in sociological methods, including SOCY 160
5. One advanced seminar in Sociology (SOCY 300–399)
6. The senior requirement must integrate sociology and the other subject chosen

Credit/D/Fail courses A maximum of two courses taken Credit/D/Fail may be counted toward the requirements of the major.

SENIOR REQUIREMENTS

For the non-intensive major Students electing the non-intensive major take one additional seminar in Sociology (SOCY 300–399) and write a one-credit senior essay during the senior year (SOCY 491 or SOCY 492). The senior essay for non-intensive majors is intended to be an in-depth scholarly review and critical analysis based on secondary sources. Students select an important topic in any sociological field and

write a literature review that evaluates what is known about the topic. All non-intensive majors are required to enroll in SOCY 491 or SOCY 492 to receive credit for the senior essay. To register for this course, students must submit a written plan of study approved by a faculty adviser to the DUS no later than the end of registration period in the term in which the senior essay is to be written. Non-intensive majors are not eligible to graduate with Distinction in the Major.

For the intensive major The intensive major gives students an opportunity to undertake a yearlong program of original research resulting in a contribution to sociological knowledge. The yearlong project requires substantial independent research and knowledge of a sociological sub-field. Students use research methods such as data gathering through participant observation, in-depth interviewing, administration of small-scale surveys, or secondary analysis of existing data. They may present findings in a variety of forms, from ethnographic narratives to analytical statistics. Students select primary and secondary advisers from the faculty. Students in the intensive major enroll in SOCY 493, 494 during their senior year. The colloquium provides a forum for discussing the research process and for presenting students' research at various stages. Intensive majors are eligible to graduate with Distinction in the Major if they meet the grade standards for Distinction and submit a senior essay written in SOCY 493, 494. See The Undergraduate Curriculum, Honors.

ADVISING

All students interested in the Sociology major should meet with the DUS no later than the beginning of the junior year to elect a program of study. Qualified students may petition to enroll in graduate courses, with permission of the instructor and the director of graduate studies. A list of graduate courses and descriptions is available from the DUS.

Admission to the intensive major Candidates for the intensive major should indicate interest to the DUS by registration period in the spring for the fall term of their senior year. The intensive major is especially recommended for students considering graduate school or social research. The DUS and the senior essay adviser serve as advisers to seniors in the intensive major.

STUDY ABROAD

Students planning to study abroad in their junior year are strongly encouraged to begin meeting specific requirements in their sophomore year. They should also discuss the options for their course of study with the DUS before finalizing their plans.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite None

Number of courses 13 term courses (incl senior req)

Specific courses required *Standard major and Student-Designed concentration* – SOCY 151, 152, 160; *Economy & Society, Health & Society, Data & Society, and Inequality, Race & Society concentrations* – SOCY 151 or 152; SOCY 160; *Health & Society* – SOCY 126 or 127 or a comparable course approved by the DUS

Distribution of courses *Standard major and all concentrations* – at least 1, but no more than 2 intro courses; *Standard major and Student-Designed concentration* – 1 addtl

sociological methods course; *Economy & Society concentration* – 2 intermed or adv courses in economic sociology (e.g., SOCY 234, 314, 321) and 1 in microecon (ECON 121 or 125); *Health & Society concentration* – 1 stat course, as specified; 2 intermed or adv seminars, as specified; *Data and Society concentration* – SOCY 100 or 130; 1 intro stat course, 2 quantitative methods courses, 2 interm or adv courses of sociological interest, 1 indep study, 1 interm or adv stat course, all as indicated; *Inequality, Race, and Society concentration* – SOCY 144, 1 stat course as specified, 5 electives, 1 adv sem as indicated; *Student-Designed concentration* – 1 sem from SOCY 300–399

Substitution permitted *Economy & Society, Data & Society, and Student-Designed concentrations* – up to 4 courses from other depts, with DUS approval; *Health & Society concentration* – up to 5 courses from other depts as specified and with DUS approval; *Inequality, Race, and Society concentration* – up to 2 courses from other depts as specified and with DUS approval

Senior requirement *Standard major and all concentrations* – 1 addtl 300-level Sociology sem and senior essay (SOCY 491 or SOCY 492); *Intensive major* – two-term senior essay (SOCY 493, 494)

FACULTY OF THE DEPARTMENT OF SOCIOLOGY

Professors Julia Adams, Jeffrey Alexander, Elijah Anderson, †James Baron, Scott Boorman, Nicholas Christakis, †Paul Cleary, Philip Gorski, Grace Kao, †Marissa King, †Peter Salovey, †Vicki Schultz, Philip Smith

Associate Professors Rene Almeling, †Monica Bell, Emily Erikson, †Justin Farrell, †Marissa King, †Issa Kohler-Hausmann, Jonathan Wrytzen

Assistant Professors †Julie DiBenigno, Daniel Karell, †Balázs Kovács, Alka Menon, Rourke O'Brien, Emma Zang

†A joint appointment with primary affiliation in another department or school.

See the visual roadmap of the requirements.

South Asian Studies

Director of undergraduate studies: Priyasha Mukhopadhyay
(priyasha.mukhopadhyay@yale.edu), south.asia@yale.edu

The program in South Asian Studies combines the requirements of a discipline-based first major with significant coursework in South Asian Studies. South Asian Studies can be taken only as a second major. The major is intended to provide students with a broad understanding of the history, culture, and languages of South Asia, as well as the region's current social, political, and economic conditions. Work in a discipline-based major coupled with a focus on South Asia prepares students for graduate study, employment in nongovernmental organizations, or business and professional careers in which an understanding of the region is essential.

REQUIREMENTS OF THE MAJOR

In addition to fulfilling the requirements of the primary major, a student choosing South Asian Studies as a second major must complete seven term courses in South Asian Studies numbered 200 or above. At least two of the seven courses must address premodern South Asia, and at least two should be seminars. Students may petition the director of undergraduate studies (DUS) to include one relevant course from another department or program; approval may require additional course work on South Asian topics. Students must also complete the senior requirement and meet the major's language requirement.

Language requirement One South Asian language must be studied at the advanced level (L5). Students who matriculate with advanced proficiency in a South Asian language (excluding English), as demonstrated through testing, are encouraged to study Sanskrit, or to study a second modern language through Yale courses or the Directed Independent Language Study program. Students may request substitution of another appropriate language (e.g., Persian or Arabic) for the core language requirement, and they are encouraged to pursue intensive language study through courses or work abroad.

Credit/D/Fail A maximum of one course taken Credit/D/Fail may count toward the major.

SENIOR REQUIREMENT

The senior requirement may be fulfilled by completion of a seminar that culminates in a senior essay. Alternatively, the requirement may be fulfilled by completion of a one-credit, two-term senior research project in SAST 491, 492, or by completion of a one-credit, one-term directed study in SAST 486 that culminates in a senior essay. The senior essay should be a substantial paper with a maximum length of 8,000 words for one term, and 10,500 words for two terms. The use of primary materials in the languages of the region is encouraged in senior essay projects. The DUS must approve senior essay plans early in the student's senior year.

ADVISING

The South Asian Studies major permits students to choose courses from a wide range of disciplines. Individual programs should have a balance between courses in the humanities and those in the social sciences. The proposed course of study must be

approved each term by the DUS. Students should also identify an adviser from the South Asian Studies faculty in their area of specialization as early as possible.

Two majors Permission to complete two majors must be secured from the Committee on Honors and Academic Standing. Application forms are available from the residential college deans and must be submitted prior to the student's final term.

Courses in the Graduate School Graduate courses in South Asian Studies are open to qualified undergraduates. Course descriptions appear in the Graduate School online bulletin and are also available in the South Asian Studies program office. Permission of the instructor and of the director of graduate studies is required.

STUDY ABROAD

Up to three course credits from approved study abroad programs may be applied toward the requirements of the major, with permission of the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 7 term courses (not incl senior req or lang req)

Distribution of courses 7 courses in South Asian Studies numbered 200 or above, 2 in premodern, 2 sems

Substitution permitted One relevant course in another dept, and/or up to 3 study abroad credits with DUS permission

Language requirement South Asian lang through L5 level

Senior requirement Senior essay in sem, or research project in SAST 491, 492, or senior essay in SAST 486

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of South Asian Studies offers a Certificate of Advanced Language Study in Hindi. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 Yale course, conducted in the target language, such as an independent study course (graded Pass/Fail), a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one "language across the curriculum" (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in

the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study.

FACULTY ASSOCIATED WITH THE PROGRAM OF SOUTH ASIAN STUDIES

Professors Akhil Amar (*Law School*), Sunil Amrith (*History*), Tim Barringer (*History of Art*), Veneeta Dayal (*Linguistics*), Nihal de Lanerolle (*School of Medicine*), Michael Dove (*Anthropology, Forestry & Environmental Studies*), Robert Jensen (*Economics*), Mushfiq Mobarak (*Economics, School of Management*), Kaivan Munshi (*Economics*), Rohini Pande (*Economics*), Kishwar Rizvi (*History of Art*), Kalyanakrishnan Sivaramakrishnan (*Anthropology, Forestry & Environmental Studies*), Shyam Sunder (*School of Management*), Kalindi Vora (*Women's, Gender, & Sexuality Studies, Ethnicity, Race, & Migration*), Steven Wilkinson (*Political Science*)

Associate Professors Rohit De (*History*), Mayur Desai (*Public Health*), Zareena Grewal (*Ethnicity, Race, & Migration*)

Assistant Professors Anthony Acciavatti (*Architecture*), Supriya Gandhi (*Religious Studies*), Sonam Kachru (*Religious Studies*), Sarah Khan (*Political Science*), Priyasha Mukhopadhyay (*English*), Ameera Nimjee (*Music*), Madiha Tahir (*American Studies*)

Senior Lecturer Carol Carpenter (*Anthropology, Forestry & Environmental Studies*)

Lecturers Jane Lynch (*Anthropology*), Jane Mikkelson (*Comparative Literature, Near Eastern Languages & Civilizations*)

Senior Lecturer Swapna Sharma (*Hindi*)

Lectors Mansi Bajaj (*Hindi*), Aleksandar Uskokov (*Sanskrit*)

Southeast Asia Studies

Chair: Erik Harms (erik.harms@yale.edu), 10 Sachem St., 436-4276; program manager: Ei Khin (ei.khin@yale.edu); language program director: Dinny Aletheiani (dinny.aletheiani@yale.edu); cseas.yale.edu

The Council on Southeast Asia Studies offers an interdisciplinary program that brings together faculty and students sharing an interest in Southeast Asia and contributes to the curriculum with language courses, a weekly seminar series, periodic conferences, cultural events, and special lectures. Yale maintains extensive library and research collections on Southeast Asia, including online archives of periodicals and newspapers from all parts of the region.

Yale does not offer a degree in Southeast Asia studies, but majors in any department may consult with Council faculty regarding a senior essay on a Southeast Asian topic, and in certain circumstances students who have a special interest in the region may consider a Special Divisional Major. Students interested in pursuing field research or language study in Southeast Asia may apply to the Council for summer fellowship support.

Courses featuring Southeast Asian content are offered each year within a variety of departments and programs, including Anthropology, Ethnicity, Race, and Migration (ER&M), Environmental Studies, History, History of Art, Music, Philosophy, Political Science, and Sociology. A list of courses for the current year can be obtained through the Council office or the Southeast Asia Studies website.

Language instruction at all levels is offered in two Southeast Asian languages, Indonesian and Vietnamese. Other Southeast Asian languages may be available in any given year via video conference through the Yale Shared Course Initiative. Check the Southeast Asia Studies language studies web page for updated information. The Council on Southeast Asia Studies supports language tables and independent study in other Southeast Asian languages through the Directed Independent Language Study program.

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Southeast Asian Studies offers a Certificate of Advanced Language Study in Vietnamese. A certificate adviser, typically the director of undergraduate studies (DUS) or language program director (dinny.aletheiani@yale.edu), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the adviser, one advanced non-L5 Yale course, conducted

in the target language, such as an independent study course (graded Pass/Fail), a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may allow one “language across the curriculum” (LxC) course taught in English to count toward the certification requirements provided the course includes at minimum a weekly discussion section conducted entirely in the target language. The discussion section must enroll a minimum of three students and the course must be designated as LxC in the course description.

The certificate adviser may also approve the substitution of up to two credits earned during study abroad and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated with the Certificate of Advanced Language Study.

FACULTY ASSOCIATED WITH THE COUNCIL ON SOUTHEAST ASIA STUDIES

Professors Michael R. Dove (*School of the Environment*), J. Joseph Errington (*Anthropology*), Benedict Kiernan (*History*), James Scott (*Political Science*), Mimi Yiengpruksawan (*History of Art*)

Associate Professor Erik Harms (*Anthropology*)

Assistant Professor Alka Menon (*Sociology*)

Senior Lecturers Carol Carpenter (*School of the Environment, Anthropology*), Amity Doolittle (*School of the Environment*)

Lecturer Quan T. Tran (*American Studies*)

Curator Ruth Barnes (*Art Gallery*)

Senior Lecturer II Quang Phu Van (*Vietnamese*)

Senior Lectors Dinny Risri Aletheiani (*Indonesian*), Indriyo Sukmono (*Indonesian*)

Spanish

Director of undergraduate studies: TBD (fall 2023); Noël Valis (noel.valis@yale.edu) (spring 2024); language program director: Jorge Méndez-Seijas; span-port.yale.edu

The Department of Spanish and Portuguese provides instruction in the languages, literatures, and cultures of the Hispanic and Luso-Brazilian worlds. Courses in Portuguese and the requirements of the major are described under Portuguese; the names of faculty teaching Portuguese courses are included in the faculty roster.

The major in Spanish is a liberal arts major that offers a wide range of courses in the language, literatures, and cultures of the twenty Spanish-speaking countries in Europe, Latin America, and the Caribbean. Today, Spanish is the second language of the United States, one of the three most widely spoken languages in the world, and one of the five diplomatic languages of the United Nations. The program in Spanish offers students the opportunity to acquire thorough linguistic proficiency as well as in-depth knowledge of both cultural and literary topics. The major explores literature, history, philosophy, art, and cultural studies, and provides excellent preparation for careers in law, diplomacy, medicine, business, the arts, academics, journalism, and education.

COURSE NUMBERING

Courses numbered SPAN 110–199 include beginning and intermediate language courses designed to help students develop fluency in understanding, speaking, reading, and writing Spanish. Courses numbered SPAN 200–299 seek to provide students with a broad but solid introduction to the fields of Hispanic literatures and cultures while strengthening their linguistic competence. Courses numbered 300–499 allow students to perfect their linguistic and critical skills through study of a specific problem or issue, e.g., a literary genre, a type of literary or cultural representation, or a specific writer or text. Students desiring more information about either language or literature offerings should consult the director of undergraduate studies (DUS).

PREREQUISITE

Prerequisite to the major is SPAN 140, 142, or 145, or the equivalent through advanced placement or study abroad. Equivalent preparation to SPAN 140, 142, or 145 may be demonstrated by the test scores indicated below under "Language Courses and Placement Procedures."

LANGUAGE COURSES AND PLACEMENT PROCEDURES

Students with no previous formal or informal Spanish study ordinarily enroll in SPAN 110. Students who take SPAN 110 are strongly encouraged to continue with 120 in the following term. Students wishing to take intensive beginning Spanish may, with the instructor's permission, enroll in SPAN 125, which covers the same material as SPAN 110 and 120, but in one term. SPAN 132 and 142 are designed for heritage speakers and are available only to them. Admission to SPAN 132 and 142 is based on results of the departmental placement examination; interested students should contact the instructor.

All students, including native speakers, who have previously studied Spanish formally or informally must take the departmental placement examination in order to enroll

in a Spanish course. The only exception to this rule is made for students who have demonstrated advanced ability in the language by (1) receiving a score of 5 on either of the Spanish Advanced Placement tests; (2) receiving a score of 6 or 7 on the Advanced-Level International Baccalaureate examination; or (3) attaining a proficiency level of C1 in the Common European Framework of Reference for Languages. These students may enroll directly in any L5 course.

Information about the departmental placement examination and about preregistration procedures for Spanish L1–L4 language courses is available on the department website.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisite, ten term courses numbered SPAN 200 or higher are required, five of which must be numbered SPAN 300 or higher. SPAN 491, The Senior Essay, counts as one of the ten required courses. A maximum of one course may be numbered SPAN 200–230. First-year seminars taught in Spanish count toward the major in the SPAN 231–299 range. A maximum of one course taught in English may be counted toward the major requirements.

Intensive major Students in the intensive major fulfill the requirements for the standard major, and take an additional two courses numbered SPAN 300 or higher.

SENIOR REQUIREMENT

Seniors write the senior essay in SPAN 491 in the spring of their senior year under the individual direction of a faculty adviser. Students expecting to complete their degree requirements in December write the senior essay in SPAN 491 in the fall of their senior year. Seniors in SPAN 491 are expected to submit their completed essay to the DUS by 4 p.m. on December 8 in the fall term, or by 4 p.m. on April 18 in the spring term. If the essay is submitted late without an excuse from the student's residential college dean, the penalty is one letter grade, though no essay that would otherwise pass will be failed because it is late.

ADVISING

Two majors Students electing Spanish as one of two majors should consult the DUS about a specialized course of study.

Courses in the Graduate School Juniors and seniors majoring in Spanish may, with permission of the instructor and the director of graduate studies, enroll in graduate literature courses in Spanish. A list of pertinent graduate courses is available at the office of the DUS.

STUDY ABROAD

Students at the intermediate level of language study are encouraged to apply to the eight-week summer language courses offered by Yale Summer Session in New Haven and Bilbao, Spain, or in Quito, Ecuador. Advanced students may apply for the five-week Yale Summer Session courses offered in Valencia, Spain, and in Quito, Ecuador. More information about these programs is available on the Yale Summer Session website. For information about the Year or Term Abroad program, see Academic Regulations, section K, Special Academic Programs. Students who wish to count courses taken abroad toward the major should consult with the DUS before going abroad.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite 1 course from SPAN 140, 142, 145, or equivalent

Number of courses 10 term courses (including senior requirement)

Distribution of courses 10 term courses numbered SPAN 200 or higher, 5 of which are numbered SPAN 300 or higher; max of one course numbered SPAN 200–230; max of one SPAN course taught in English

Senior requirement Senior essay (SPAN 491)

Intensive major 2 addtl courses numbered SPAN 300 or higher, totaling 12 term courses

CERTIFICATE OF ADVANCED LANGUAGE STUDY

The Department of Spanish and Portuguese offers a Certificate of Advanced Language Study in Spanish. A certificate adviser, typically the director of undergraduate studies (DUS), advises students on the certification process and certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study. The Certificate of Advanced Language Study, once certified, is listed on the student's transcript.

REQUIREMENTS

Students seeking to earn the certificate are required to take four courses, all beyond the L4 level in their chosen language, at least two of which must be Yale courses designated as L5, and at least one of which must be a Yale 300-level advanced undergraduate lecture or seminar. All Yale Spanish courses at the 200- or 300-level, which carry an L5 designation, count toward the requirement. First-Year Seminars taught in Spanish count as courses in the SPAN 231–299 range. All courses must be taken for a letter grade, and students must achieve a grade of B or above. With the approval of the certificate adviser, one advanced non-L5 course conducted in the target language, such as an independent study course, a graduate seminar, or an advanced seminar may count toward certification requirements.

The certificate adviser may approve the substitution of one credit earned as part of a Yale or Yale-designated study abroad program and taught in the target language to count toward the certificate requirements. If the adviser approves courses taken outside of Yale for inclusion in the certificate requirements, students must take the necessary steps to ensure that those courses appear on their transcripts.

Credit/D/Fail No courses taken Credit/D/Fail may be counted toward the requirements of the certificate.

Students are encouraged to complete and submit the Declaration of Candidacy for a Certificate Form found on the University Registrar's website. Once completed, the form sends notification emails to the certificate adviser(s) and to the Yale University Registrar's Office so that the student's Degree Audit can be updated to include the Certificate of Advanced Language Study.

FACULTY OF THE DEPARTMENT OF SPANISH AND PORTUGUESE

Professors Aníbal González-Pérez, K. David Jackson, Nicholas R. Jones, Noël Valis, Jesús R. Velasco (*Chair*), Lisa Voigt

Senior Lectors II Sybil Alexandrov, Jorge Méndez-Seijas, Margherita Tortora

Senior Lectors I María Pilar Asensio-Manrique, Mercedes Carreras, Sebastián Díaz, María de la Paz García, Ximena González Parada, María José Gutiérrez Barajas, María Jordán, Rosamaría León, Luna Nájera, Juliana Ramos-Ruano, Lissette Reymundi, Lourdes Sabé-Colom, Terry Seymour, Giseli Tordin, María M. Vázquez

Lectors Carolina Baffi, Igor de Souza, Sarah Glenski, Ian Russell, Noelia Sánchez-Walker

Senior Lecturer II Alex Gil

See visual roadmap of the requirements.

Special Divisional Majors

Director of undergraduate studies: Sarah Mahurin (sarah.mahurin@yale.edu), Dean's Office TD, 432-0754

A Special Divisional Major affords an alternative for students whose academic interests cannot be met by an existing departmental or special major. Students may, with the approval of the Committee on Honors and Academic Standing, design majors of their own in consultation with members of the faculty and in accordance with the procedures outlined below.

Special Divisional Majors differ so widely in content that there is no uniform format, but many of these majors draw from several departments to focus on a particular culture, period, or problem (e.g., French studies, medieval studies, urban studies). Students interested in pursuing a Special Divisional Major in Renaissance studies should visit the Renaissance Studies program website. A Special Divisional Major may not be offered as one of two majors.

Students considering a Special Divisional Major should be aware of its particular demands and risks. They face the challenges of interdisciplinary work and must grapple with the conceptual processes of disparate disciplines. They must establish criteria for selecting courses and organize their courses in order to obtain an adequate base in the fields necessary for advanced work on a specific topic.

Students in a Special Divisional Major may get little help in designing their programs. Because they are in separate, independent programs, they forfeit some of the services normally provided as part of a departmental or special major. They must, for example, find their own advisers. They need to ask the help of faculty members already committed to other departments and programs who may not share their interdisciplinary interests. They must acquire the necessary background and sustain their interest without the help of any special seminar. They may lose other advantages of departmental affiliation, such as priority for acceptance in restricted-enrollment courses, opportunities to meet students and faculty members with similar interests, and participation in a program easily understood by graduate schools and others. Their transcripts will carry only the notation "Special Divisional Major," without specifying the student's field of concentration.

Before applying for a Special Divisional Major, students are urged to consult the directors of undergraduate studies (DUSes) in their fields of major interest, who can advise them whether a Special Divisional Major is necessary. Special interests can usually be accommodated within an existing major.

PREREQUISITES

Because of the variety of programs, there are no uniform prerequisites. All students must satisfy their prospective advisers and the Committee that they have obtained adequate preparation for the advanced courses and senior projects they propose.

REQUIREMENTS OF THE MAJOR

The major ordinarily comprises at least twelve advanced term courses and a senior project. Advanced courses include all but prerequisites for majors, beginning language courses, and comparable courses. When appropriate, approval is granted for graduate

courses, tutorials, and Residential College Seminars. No distinction is made in the Special Divisional Major between standard and intensive majors.

The DUS in the Special Divisional Major presents proposals for the major to the Committee on Honors and Academic Standing. General problems connected with a student's program may be discussed with the DUS. Students who revise their original proposal or change faculty advisers must obtain the Committee's approval. The Committee advises the Yale College Faculty whether or not the student has completed a major and may not be able to recommend students for the degree who have changed their programs without proper consultation.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

No later than midterm of their seventh term of enrollment, and after consultation with their faculty advisers, students provide the Committee with an outline of their plans for the senior project. There are several options: a written or oral examination, a senior essay or project, or, in some circumstances, a graduate course or a tutorial. A senior essay usually offers the most effective means of integrating material from more than one discipline, and students in a Special Divisional Major typically request one course credit in each term of the senior year in SPEC 491, 492, The Senior Project.

Students who offer a yearlong senior project must, in order to continue the course into the second term, provide their advisers with substantial written evidence of their progress (i.e., a draft or detailed outline) by the end of their seventh term. The project must be completed no later than two weeks before the last day of classes in the student's eighth term of enrollment. At least two faculty members evaluate it.

ADVISING AND APPLICATION TO THE MAJOR

Advisers Candidates must arrange for faculty advisers before applying. DUSes or department chairs can usually suggest advisers. The Committee expects each student to obtain a primary adviser from the department that forms the principal component of the major, as well as one or more adjunct advisers from other fields. The primary adviser must be a regular member of the Yale College faculty. Members of the faculties of other schools of the University and visiting faculty members may serve as adjunct advisers.

Both advisers and students assume special responsibilities when designing and completing a major that falls outside existing programs. The special nature of the program and the student's loss of departmental affiliation make it particularly important for the faculty adviser to meet regularly with the student to help plan the program and to supervise its completion, including the senior project.

The primary adviser assumes chief responsibility for reporting the student's progress to the Committee and for assigning a grade to the senior project. The primary adviser also consults the student's other advisers and works with them in directing, evaluating, and grading the senior project.

Application Students considering a Special Divisional Major are invited to talk with DUSes and with their residential college deans at any stage in their planning. Candidates may apply for admission as early as their fourth term of enrollment, but must have done so no later than one month after their seventh term of enrollment

begins. The Committee's experience suggests that the last term of the sophomore or the first term of the junior year is the best time to apply.

Lucidity, coherence, and completeness in an application are of primary importance to a student's candidacy, since they are indications of a thoughtfully prepared program of study and of the qualities of eagerness and initiative essential to a successful Special Divisional Major. The Committee expects that applicants will have worked in close collaboration with the director of undergraduate studies (DUS) of the Special Divisional Major in developing their proposals, and it will normally view failure to do so as grounds for rejection of the application.

Application forms are available at the Timothy Dwight College Dean's Office. They are submitted, along with letters of support from faculty advisers, to the Committee on Honors and Academic Standing, in care of the Timothy Dwight College Dean's Office. The Committee meets to consider proposals several times a year. All students in good standing are eligible, although the Committee must be satisfied that candidates have particular aptitude and preparation for the work they propose.

In approving or rejecting proposals for a Special Divisional Major, the Committee looks principally at the quality of the student's planning. What are the objectives of the program? What are the principles for selecting courses and organizing material? Is the program comparable in breadth and depth to other majors in Yale College? What provisions have been made to guide and evaluate the student's progress? What sort of senior project would focus and integrate the program? Finally, are the objectives of the program best served by a Special Divisional Major? The Committee will not approve a major if the student can accomplish the desired aims in an existing major; the Committee may consult DUSes and other faculty members to judge whether or not this is the case.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisite Approval of 2 or more faculty advisers and Committee on Honors and Academic Standing

Number of courses 13 term courses (incl one-term senior essay) or 14 term courses (incl two-term senior essay)

Distribution of courses Advanced courses in 2 or more appropriate depts; grad courses, college sems, or tutorials with DUS permission

Senior requirement Senior essay or project (SPEC 491 and/or 492), or, with DUS permission, written or oral exam, grad course, or tutorial

Statistics and Data Science

Director of undergraduate studies: Sekhar Tatikonda (sekhar.tatikonda@yale.edu), 432-4714; statistics.yale.edu; Major FAQ and guide; undergraduate major checklist

Statistics is the science and art of prediction and explanation. The mathematical foundation of statistics lies in the theory of probability, which is applied to problems of making inferences and decisions under uncertainty. Practical statistical analysis also uses a variety of computational techniques, methods of visualizing and exploring data, methods of seeking and establishing structure and trends in data, and a mode of questioning and reasoning that quantifies uncertainty. Data science expands on statistics to encompass the entire life cycle of data, from its specification, gathering, and cleaning, through its management and analysis, to its use in making decisions and setting policy. This field is a natural outgrowth of statistics that incorporates advances in machine learning, data mining, and high-performance computing, along with domain expertise in the social sciences, natural sciences, engineering, management, medicine, and digital humanities.

Students majoring in Statistics and Data Science take courses in both mathematical and practical foundations. They are also encouraged to take courses in the discipline areas listed below.

The B.A. in Statistics and Data Science is designed to acquaint students with fundamental techniques in the field. The B.S. prepares students to participate in research efforts or to pursue graduate school in the study of data science.

COURSES FOR NONMAJORS AND MAJORS

S&DS 100 and S&DS 101–109 and S&DS 123 (YData) assume knowledge of high-school mathematics only. Students who complete one of these courses should consider taking S&DS 230. This sequence provides a solid foundation for the major. Other courses for nonmajors include S&DS 110 and 160.

PREREQUISITES

Multivariable calculus is required and should be taken before or during the sophomore year. This requirement may be satisfied by one of MATH 120, ENAS 151, MATH 230, MATH 302, or the equivalent.

REQUIREMENTS OF THE MAJOR

Students who wish to major in Statistics and Data Science are encouraged to take S&DS 220 or a 100-level course followed by S&DS 230. Students should complete the calculus prerequisite and linear algebra requirement (MATH 222 or 225 or 226) as early as possible, as they provide mathematical background that is required in many courses.

B.A. degree program The B.A. degree program requires eleven courses, ten of which are from the seven discipline areas described below: MATH 222 or 225 or MATH 226 from Mathematical Foundations and Theory; two courses from Core Probability and Statistics; two courses that provide Computational Skills; two courses on Methods of Data Science; and three courses from any of the discipline areas subject to DUS approval. The remaining course is fulfilled through the senior requirement.

B.S. degree program The B.S. degree program requires fourteen courses, including all the requirements for the B.A. degree. Specifically, B.S. degree candidates must take S&DS 242 and S&DS 365 to fulfill the B.A. requirements. The three remaining courses include one course chosen from the Mathematical Foundations and Theory discipline and two courses chosen from Core Probability and Statistics (not including S&DS 242), Computational Skills, Methods of Data Science (not including S&DS 365), Mathematical Foundations and Theory, or Efficient Computation and Big Data discipline areas subject to DUS approval.

Discipline Areas The seven discipline areas are listed below.

Core Probability and Statistics These are essential courses in probability and statistics. Every major should take at least two of these courses, and should probably take more. Students completing the B.S. degree must take S&DS 242.

Examples of such courses include: S&DS 238, 241, S&DS 242, 312, 351

Computational Skills Every major should be able to compute with data. While the main purpose of some of these courses is not computing, students who have taken at least two of these courses will be capable of digesting and processing data. While there are other courses that require more programming, at least two courses from the following list are essential.

Examples of such courses include: S&DS 220 or 230, 262, 265, 425, CPSC 100 or 112, or 201 or ENAS 130

Methods of Data Science These courses teach fundamental methods for dealing with data. They range from practical to theoretical. Every major must take at least two of these courses. Students completing the B.S. degree must take S&DS 365.

Examples of such courses include: S&DS 312, 317, 361, 363, 365, 430, 431, 468, EENG 400, CPSC 446, 452, 477

Mathematical Foundations and Theory All students in the major must know linear algebra as taught in MATH 222 or 225 or 226. Students who have learned linear algebra through other courses (such as MATH 230, 231) may substitute another course from this category. Students pursuing the B.S. degree must take at least two courses from this list and those students contemplating graduate school should take additional courses from this list as electives.

Examples of such courses include: S&DS 364, 400, 410, 411, CPSC 365, 366, 469, MATH 222, 225, MATH 226, 244, 250, MATH 255, MATH 256, 260, 300, 301, or MATH 302

Efficient Computation and Big Data These courses are for students focusing on programming or implementation of large-scale analyses and are not required for the major. Students who wish to work in the software industry should take at least one of these.

Examples of such courses include: CPSC 223, 323, 424, 437

Data Science in Context Students are encouraged to take courses that involve the study of data in application areas. Students learn how data are obtained, how reliable they

are, how they are used, and the types of inferences that can be made from them. These course selections should be approved by the director of undergraduate studies (DUS).

Examples of such courses include: ANTH 376, EVST 362, GLBL 191, 195, LING 229, 234, 380, PLSC 454, PSYC 258

Methods in Application Areas These are methods courses in areas of applications. They help expose students to the cultures of fields that explore data. These course selections should be approved by the DUS.

Examples of such courses include: CPSC 453, 470, 475, ECON 136, 420, EENG 445, S&DS 352, LING 227

Substitution Some substitution, particularly of advanced courses, may be permitted with DUS approval.

Credit/D/Fail Credit/D/Fail may not be counted toward the requirements of the major (this includes prerequisite courses).

SENIOR REQUIREMENT

Students in the Class of 2024 in both the B.A. degree program and B.S. degree program complete the senior requirement by taking a capstone course (S&DS 425) or an individual research project course. Courses for research opportunities include S&DS 491 or S&DS 492, and must be advised by a member of the department of Statistics and Data Science or by a faculty member in a related discipline area. Students must complete a research project to be eligible for Distinction in the Major.

Starting with the Class of 2025 students in both the B.A. degree program and B.S. degree program complete the senior requirement by completing an individual research project. Courses for research opportunities include S&DS 491 or 492 (but not both), and must be advised by a member of the department of Statistics and Data Science or by a faculty member in a related discipline area.

ADVISING

Students intending to major in Statistics and Data Science should consult the department guide and FAQ. Statistics and Data Science can be taken either as a primary major or as one of two majors, in consultation with the DUS. Appropriate majors to combine with Statistics and Data Science include programs in the social sciences, natural sciences, engineering, computer science, or mathematics. A statistics concentration is also available within the Applied Mathematics major.

Combined B.S./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.S. in S&DS and M.A. in Statistics after eight terms of enrollment. See Academic Regulations, section L, Special Academic Arrangements, "Simultaneous Award of the Bachelor's and Master's Degrees." Interested students should consult the DUS at the beginning of their fifth term of enrollment for specific requirements in Statistics and Data Science.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *Both degrees* – one of MATH 120, ENAS 151, MATH 230, MATH 302, or equivalent

Number of courses *B.A.* – 11 term courses beyond prereqs (incl senior req); *B.S.* – 14 term courses beyond prereqs (incl senior req)

Specific courses required *B.A.* – MATH 222 or 225 or MATH 226; *B.S.* – same, plus 1 Core Probability and Statistics course must be S&DS 242; and for the Class of 2024 and beyond, 1 Methods of Data Science course must be S&DS 365

Distribution of courses *B.A.* – 2 courses from Core Probability and Statistics, 2 courses from Computational Skills, 2 courses from Methods of Data Science, and 3 electives chosen from any discipline area with DUS approval; *B.S.* – same, plus 1 Mathematical Foundations and Theory course and 2 additional electives from any discipline area (except Data Science in Context and Methods in Application Areas) with DUS approval

Substitution permitted With DUS approval

Senior requirement *Both degrees for Class of 2024* – Senior Project (S&DS 491 or S&DS 492) or Statistical Case Studies (S&DS 425); *both degrees for Class of 2025 and beyond* – Senior Project (S&DS 491 or S&DS 492)

CERTIFICATE IN DATA SCIENCE

The Certificate in Data Science is designed for students majoring in disciplines other than Statistics & Data Science to acquire the knowledge to promote mature use of data analysis throughout society. Students gain the necessary knowledge base and useful skills to tackle real-world data analysis challenges. Students who complete the requirements for the certificate are prepared to engage in data analysis in the humanities, social sciences, and sciences and engineering and are able to manage and investigate quantitative data research and report on that data.

Refer to the S&DS website for more information.

PREREQUISITE

The suggested prerequisite for the certificate is an introductory course, selected from one of the following courses: S&DS 100, 101–109, 123 or 220, or an introductory data analysis course from another department.

REQUIREMENTS OF THE CERTIFICATE

To fulfill the requirements of the certificate, students must take five courses from four different areas of statistical data analysis. No course may be applied to satisfy the requirements of both a major and the certificate. No single course may count for two areas of study. Students are required to earn at least a B– for each course.

Probability and Statistical Theory One from S&DS 238, 240, 241, S&DS 242. Advanced students may substitute S&DS 351 or S&DS 364 or EENG 431.

Statistical Methodology and Data Analysis Two from S&DS 230, S&DS 242, 312, 361, 363, PLSC 349. ECON 136 may be substituted for S&DS 242.

Computation & Machine Learning One from S&DS 262, 265, 317, 365, CPSC 223, 477, PHYS 378, PLSC 468. CPSC 323 may be substituted for CPSC 223.

Data Analysis in a Discipline Area Two half-credit courses or one full-credit course from those approved for this requirement and listed on the S&DS website.

ADVISING

More information about the certificate, including how to register, is available on the S&DS website.

SUMMARY OF REQUIREMENTS

Prerequisite 1 term course from S&DS 100, 101–109, 123 or 220 (or an introductory data analysis course in another department)

Number of courses 5 term courses

Distribution of courses 1 probability and statistical theory course; 2 statistical methodology and data analysis courses; 1 computational and machine learning course; and 2 half-credit courses or 1 course in discipline area, as specified

FACULTY OF THE DEPARTMENT OF STATISTICS AND DATA SCIENCE

Professors †Donald Andrews, Andrew Barron, †Jeffrey Brock, Joseph Chang, †Katarzyna Chawarska, †Xiaohong Chen, †Nicholas Christakis, †Ronald Coifman, †James Duncan, John Emerson (*Adjunct*), †Alan Gerber, †Mark Gerstein, Anna Gilbert, John Hartigan (*Emeritus*), †Edward Kaplan, †Harlan Krumholz, John Lafferty, David Pollard (*Emeritus*), †Nils Rudi, Jasjeet Sekhon, †Donna Spiegelman, Daniel Spielman, †Hemant Tagare, †Van Vu, Yihong Wu, †Heping Zhang, †Hongyu Zhao, Harrison Zhou, †Steven Zucker

Associate Professors †P Aronow, †Forrest Crawford, †Amin Karbasi, †Vahideh Manshadi, Ethan Meyers (*Visiting*), Sekhar Tatikonda

Assistant Professors Elisa Celis, Zhou Fan, †Joshua Kalla, Roy Lederman, †Fredrik Savje, †Dustin Scheinost, †Andre Wibisono, Zhuoran Yang, †Ilker Yildirim

Senior Lecturers †William Casey King, Brian Macdonald, Jonathan Reuning-Scherer

Lecturer Robert Wooster

†A joint appointment with primary affiliation in another department or school.

See visual roadmap of the requirements.

Theater and Performance Studies

Director of undergraduate studies: Hal Brooks (hal.brooks@yale.edu), Rm. 102C, 220 York St., 432-1310; theaterstudies.yale.edu; dance studies; musical theater

The mission of the program in Theater and Performance Studies (TAPS) is to cultivate adventurous artists and scholars with a serious commitment to craft and extensive understanding of the contexts in which cultural productions emerge. Introductory, term, and capstone courses reiterate the core learning objectives of the program: collaboration, craft, the integration of practice and theory, interdisciplinarity, and new work development.

Students are encouraged to gain experience in an array of disciplines including theater, dance, performance studies, musical theater, intermedia arts, and design. As research in theater, dance, and performance studies is interdisciplinary in scope and global in perspective, students are expected to take courses in cognate disciplines such as history, philosophy, anthropology, political science, film, art, and literature. The major provides a solid education in the humanities, as well as preparation for graduate studies or for careers in theater, dance, and the performing arts.

Faculty members are affiliated with a range of departments; their diverse expertise lends breadth and depth to course offerings and enables students to devise a course of study that reflects their developing interests. Faculty affiliated with the David Geffen School of Drama at Yale (DGSD) regularly teach for TAPS, and TAPS students have ample opportunities to interact with graduate students in the various departments of DGSD. Courses across the TAPS curriculum provide opportunities for students to attend performances by professional companies and artists, as well as to learn from discussions, workshops, and lectures offered by prominent guest artists and scholars.

Special features of the program are its production seminars, independent studies, and production-based senior projects. Production seminars, taken with permission of the instructor, offer immersive, semester-long performance research and development, culminating in public productions. Independent studies, taken under the supervision of a faculty adviser, give students the freedom to pursue individual and group-generated projects and to investigate areas of scholarship not offered elsewhere in the curriculum. Independent study courses are typically open only to juniors and seniors in the major. Production-based senior projects are described in the section on Senior Requirements below.

In addition to the theater and performance studies curricula, three additional programs are integrated into the mission of the major.

The **Dance Studies curriculum** features studio and seminar courses that cover the practice, history, and theory of diverse dance forms and movement phenomena. Students are guided in physical techniques and movement research across a wide range of temporal, geographic, and cultural sites, linking dance to the other arts, the humanities, sciences, and social sciences, and they explore the fluid and fraught relationship between movement and language. Contact: Emily Coates (emily.coates@yale.edu), Director of Dance.

The **Shen Curriculum for Musical Theater** examines the American Musical Theater as an indigenous art form, one informed and influenced by changing cultural and socio-economic conditions as well as musical tastes and styles. Shen courses combine a grounding in skill-based study with history, analysis, and theory. The faculty consists of scholars and working professionals, including composers, directors, lyricists, librettists, directors, and performers. Additionally, the Shen Curriculum supports a co-curricular program that includes the Fridays at Five series of master classes and voice lessons in musical theater technique. Contact: Daniel Egan (dan.egan@yale.edu), Coordinator of the Shen Curriculum.

Computing and the Arts is an interdepartmental major designed for students who wish to work at and across intersections between computing and theater, dance and/or performance studies. Through a mix of practical and theoretical exploration, students consider how the live body on stage is reconfigured, reimagined, and reified through technological intervention. Contact: Elise Morrison (elise.morrison@yale.edu), affiliated faculty in Computing and the Arts.

TAPS also supports three substantial co-curricular initiatives: the Performance Studies working group, the Yale Playwrights Festival, and the Yale Dance Lab.

PREREQUISITES

The prerequisites for the major are THST 110 Collaboration and THST 111 Modes of Performance.

REQUIREMENTS OF THE MAJOR

The major consists of ten term courses beyond the introductory prerequisites. Of the ten required term courses, students must take two courses in each of four domains: Artistic Practice, Interarts, Histories, and Performance Theory. Most courses are listed in more than one domain, though they may count for only one domain requirement for a given student. Students may take term courses concurrently with prerequisite courses.

Artistic Practice Domain This domain encompasses techniques and compositional strategies in theater, dance, musical theater, design, and intermedia performance. Practice-based courses emphasize the knowledge of doing, moving, creating, devising, composing, designing, and craft. Courses move through existing aesthetic practices and histories as a means of cultivating individual and collective expression and new creation. Skills: heightened attention to energy, time, and space; the artist's self-knowledge and body; fluency synthesizing movement and language in compositions; and innovative approaches to researching history and culture through performance.

Interarts Domain This domain invites students to experience art-making between disciplines and within interdisciplinary forms. Courses in this area may draw connections and inspiration between established artistic disciplines, such as theater and dance, or reach beyond the program, putting the performing arts in conversation with ideas and approaches in diverse fields including film, visual art, new media, psychology, and science. Ideally, students use the Interarts requirement to explore disciplinary practices outside of their main track and comfort zone, expanding the boundaries of methods, resources, and questioning that feed into their creative practice. Skills: collaboration; interdisciplinary research and creation; and the integration of methods and systems of knowledge drawn from diverse fields.

Histories Domain This domain includes courses in which the scope of study is defined by period, genre, and/or geographic region, in which students research past practices, texts, performances, and cultures. Courses in Histories may also ask students to employ performance-based research methods to analyze, discover, reconstruct, or intervene in diverse global, local, and personal historical narratives. Skills: engaging with material from disparate time periods, geographies, and cultural forms; methods of archival research and oral histories; and reenacting historical performance and adaptation in new forms.

Performance Theory Domain Courses in this domain introduce students to foundational theories of performativity and theatricality as applied to a range of cultural contexts and global histories. Theory courses bring together intersecting literatures of feminist and queer theory, linguistic theory, critical race studies, dance studies, and anthropology that together form the theories and methods of Performance Studies and Dance Studies as fields of study and practice. These courses may also invite students to respond to and use theoretical concepts in the creation of live art. Skills: facility with performance studies analysis; application of theory to dramatic texts and embodied practices; and investigating dynamic relationship between archives and repertoires.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the requirements of the major in Theater and Performance Studies.

SENIOR REQUIREMENTS

Majors satisfy the senior project requirement in one of two ways. They may, with the approval of the DUS, take a one-term seminar as a senior seminar. In such cases, the expectations for the final essay (minimum of thirty-five pages) will be substantially higher than for students not taking the class as a senior seminar. Or, under the supervision of a faculty adviser, a student may undertake a one-term senior project in either the fall or spring semester (THST 491). Depending upon an individual student's preparation, course work, and research objectives, a senior project may take many forms. A senior may direct, design, or devise a theatrical production, write a play, musical, or thesis-length essay, create a documentary film or digital media production, perform a role, choreograph a dance piece, or design an original performance-based or performance studies research project. Seniors engaging in production-based senior projects must also complete a shorter senior essay (15-25 pages in length), as a requirement of THST 491.

To ensure that their course work aligns with their goals, students should begin discussing senior project ideas and plans with the DUS at the start of their junior year. Senior Project meetings for all juniors are held early in the spring semester, with research and production proposals due the Friday before spring break.

ADVISING

TAPS majors in their junior and senior years are required to meet with the DUS at the beginning of each of their final four terms. Students in their first and second years of study who may be interested in the TAPS major are encouraged to meet with the DUS once a semester in order to discuss goals, learn about opportunities, and ask questions.

COURSES REQUIRING INSTRUCTOR PERMISSION

With the exception of THST 110 and THST 111, all courses in Theater and Performance Studies are limited enrollment courses that require a short statement of interest, writing sample, or audition in order to obtain instructor permission to register. When there are more applicants for a course than can be admitted, priority is given to juniors and seniors who have declared a major in Theater and Performance Studies or first-year students and sophomores who have completed one or both prerequisite courses (THST 110 and THST 111). Undergraduate students in all years of study and in all majors are encouraged to apply to courses in Theater and Performance Studies.

COURSES IN THE DAVID GEFFEN SCHOOL OF DRAMA AT YALE

Majors in Theater and Performance Studies are eligible to take DGSD courses in design, theory, dramaturgy, and theater management, with permission of the instructor, the DUS, the DGSD Registrar, and "blue form" approval submitted by their academic dean to the Registrar's Office. Undergraduates may not, however, enroll in acting or directing courses offered by the David Geffen School of Drama at Yale. Students enrolling in DGSD courses should note that a maximum of four term courses from the professional schools (of which DGSD is one) may be offered toward the bachelor's degree. Students also should note that the academic calendars of DGSD and of Yale College differ. The DGSD calendar should be consulted for scheduling. A student interested in taking a course at the David Geffen School of Drama at Yale should begin by seeking the permission of the instructor and contacting their academic dean.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites THST 110, 111

Number of courses 10 term courses beyond prerequisites (including senior requirement)

Distribution of courses 2 courses in each of four domains: Artistic Practice, Interarts, Histories, Performance Theory

Senior requirement Senior seminar or senior project (THST 491)

FACULTY ASSOCIATED WITH THE PROGRAM OF THEATER AND PERFORMANCE STUDIES

Professors James Bundy (*School of Drama, Theater and Performance Studies*), David Chambers (*Adjunct*) (*Theater and Performance Studies*), *Toni Dorfman (*Adjunct*) (*Theater and Performance Studies*), Joan MacIntosh (*Practice*) (*Theater and Performance Studies, School of Drama*), *Lawrence Manley (*English*), *Deb Margolin (*Practice*) (*Theater and Performance Studies*), Donald Margulies (*Adjunct*) (*English, Theater and Performance Studies*), *Charles Musser (*Film & Media Studies, American Studies, Theater and Performance Studies*), Tavia Nyong'o (*Theater and Performance Studies, American Studies*), *Marc Robinson (*School of Drama, Theater and Performance Studies, English*), Gregory Wallace (*Practice*) (*School of Drama, Theater and Performance Studies*)

Associate Professor Emily Coates (*Adjunct*) (*Theater and Performance Studies, School of Drama*)

Assistant Professor Elise Morrison (*Theater and Performance Studies*)

Lecturers Hal Brooks, Lacina Coulibaly, Alan Edwards, Daniel Egan, Grant Herreid, Irène Hultman, Annette Jolles, Michael Korie, Bronwen MacArthur, Marsha Norman, Nathan Roberts, Renee Robinson, Michael Rossmly, Brian Seibert, Shilarna Stokes, Daniel Ulbricht

*Member of the Executive Committee for the program.

Translation Studies Certificate

Certificate director: Marijeta Bozovic (marijeta.bozovic@yale.edu), Slavic Languages and Literatures; Film and Media Studies; Women's, Gender, and Sexuality Studies

As human migration and globalization alter the manner and speed of language change, translation has become increasingly central to the workings of the contemporary world. This certificate in Translation Studies promotes the interdisciplinary study of translation, and at the same time facilitates existing and burgeoning translation practices, encompassing literary, social, political, economic, legal, technological, and medical dimensions.

This certificate offers students a coursework-focused track to develop expertise in translation research and practice.

REQUIREMENTS

Students must successfully complete five course credits on translation-themed topics, drawn from the list of approved courses posted each semester on the Translation Studies Initiative website. Other course credits may be approved by permission of the Certificate Director and the course instructor. In addition, each student must attend three lectures or events listed through the Translation Initiative in order to be awarded the certificate. After each lecture, students are asked to submit a brief written response to the lecture to the Certificate Director to be credited for attendance. Other translation activity or other events may be counted toward this requirement at the discretion of the director.

Of the five credits, no more than three may originate in the same department. Additionally, no more than two course credits may overlap in the fulfillment of the requirements of the Translation Studies certificate or of a major, a simultaneous degree, or another certificate; and no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. Approved graduate and professional school courses may count toward the certificate.

Declaration of Candidacy

Students may apply for the certificate as early as their first semester at Yale, but must apply for the certificate at the latest one week before final schedules are due in their final semester of study. Students should submit the form on the Translation Studies Initiative website to the Certificate Director. Final approval of the certificate rests with the Certificate committee. The Certificate Director certifies to the University Registrar's Office that students have completed the stated requirements before the end of eight terms of study.

Students should submit a Declaration of Candidacy for a Certificate form, found on the University Registrar's Office website. The form should be submitted early, but at the latest, before the start of the student's last semester at Yale. Once submitted, the form goes to both the Certificate Director and the Registrar's Office. Submission of the form, and approval from the Certificate Director, is necessary to ensure that the earned Certificate appears on student transcripts.

SUMMARY OF REQUIREMENTS**Number of courses** 5 course credits**Distribution of courses** Up to 3 courses in any originating department**Additional requirements** Attendance at 3 lectures sponsored by the Translation Initiative, each followed by a 1-page written response to the event

Urban Studies

Directors of undergraduate studies: Joyce Hsiang (joyce.hsiang@yale.edu) [Spring 2023]; Elihu Rubin (eliu.rubin@yale.edu) [Fall 2023, Spring 2024], RDH, 180 York St., 436-4641; urbanstudies.yale.edu

Urban Studies is an interdisciplinary field grounded in the physical and social spaces of the city and the larger built environment. The Urban Studies major is situated within Yale's liberal arts framework and draws on the broader academic context and expertise of the Yale School of Architecture, including the areas of urban design and development, urban and architectural history, urban theory and representation, globalization and infrastructure, transportation and mobility, heritage and preservation, and community-based planning. The major introduces students to the following bodies of knowledge: history, theory, and contemporary analysis of urban morphologies, spaces, societies, and political economies; conceptual tools and analytical methods to understand urban environments and issues through spatial terms; and practices of and speculative approaches to urban planning and design.

The major prepares undergraduates for a variety of future careers and fields of graduate study related to urban planning, design, and development. These include professional and practice-oriented fields such as urban planning, landscape architecture, law, nonprofit management, public policy, real estate, and architecture; as well as research-oriented fields such as geography, sociology, anthropology, history and theory of urban planning, and urban and architectural history. For additional information visit the Urban Studies website.

REQUIREMENTS OF THE MAJOR

Thirteen course credits are required for the major, including the senior requirement. Each student, in consultation with the director of undergraduate studies (DUS) or a departmental faculty adviser, bears the responsibility for designing a coherent program, which must include the following elements: 3 surveys; 3 methods courses; 4, 5, or 6 electives (depending on the senior requirement); and a one- or two-term senior requirement.

Surveys Students choose three survey courses from the following list, of which one URBN course is required. Surveys should be completed by the end of the second year.

Surveys: URBN 160, 280, 341, 345, AMST 163, 196, ANTH 414, EVST 226, HSHM 211

Methods courses Students must choose an Urban Lab as one of the three required methods courses. The courses in the following lists introduce various methods of understanding and analyzing urbanism and the city. Students should consider completing at least two of these courses by the end of their junior year.

Urban Lab Courses: URBN 352, 353, 360, 362

Methods Courses: URBN 200, 230, 353, 360, 362, AMST 348, ANTH 303, EVST 290, SOCY 160, 169

Electives Students choose five electives if enrolling in the two-term senior requirement; six electives if opting for the one-term senior requirement. Each student is responsible for selecting their elective courses from the approved list or by petition of

the DUS. Students who take two Urban Labs (1.5 credits each) may take 4–5 electives depending on the selected senior requirement.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Urban Studies major.

SENIOR REQUIREMENT

All majors must satisfy a senior requirement undertaken during the senior year. Students have the option of pursuing a yearlong senior project, which includes URBN 490, Senior Research Colloquium, in the fall and URBN 491, Senior Project, in the spring. The senior project may be a written paper or a project that could encompass a variety of media. The primary adviser must be a member of the architecture faculty. Students not choosing a yearlong project may enroll in an advanced seminar (URBN 400–490), and produce a final paper of twenty to twenty-five pages in addition to existing course work. The seminar should be selected in consultation with the DUS. Note that students pursuing this option must also take an additional elective.

ADVISING AND INTENT TO MAJOR

Students are encouraged to declare their intent to major by the end of their second year. The intent to major process includes submission of an Intent to Major form with requested materials followed by a meeting with the DUS to discuss the intended course of study. More information regarding this process, the relevant forms, and the submission link are available on the program website. Schedules for majors must be discussed with, and approved by, the DUS in Urban Studies.

Courses in the School of Architecture Unless otherwise indicated in the course descriptions, all courses in the School of Architecture are open to majors and nonmajors with permission of the instructor and the graduate registrar. They are not available for the Credit/D/Fail option. Students are admitted on the basis of their previous coursework and previous performance.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 13 course credits (incl senior req)

Distribution of courses 3 surveys, incl 1 URBN course (to be completed by second year); 3 methods courses, one of which must be an Urban Lab; 4–6 electives, as specified

Senior requirement URBN 490 and 491; or adv seminar (URBN 400–490) and an addtl elective

FACULTY ASSOCIATED WITH URBAN STUDIES

Professors Elijah Anderson (*Sociology*), Keller Easterling (*School of Architecture*), Jennifer Klein (*History*), Marcella Nunez-Smith (*School of Medicine*), Alan Plattus (*School of Architecture*), Karen Seto (*School of Environment*), Helen Siu (*Anthropology*), Jing Tsu (*Comparative Literature, East Asian Languages and Literature*)

Associate Professors Laura Barraclough (*American Studies*), Erik Harms (*Anthropology*), Bill Rankin (*History of Science, Medicine, and Public Health*), Elihu Rubin (*School of Architecture, American Studies*)

Assistant Professors Anthony Acciavatti (*Visiting*) (*School of Architecture*), Joyce Hsiang (*School of Architecture*), Bimal Mendis (*Adjunct*) (*School of Architecture*)

Lecturer Jay Gitlin (*History*)

Critics Marta Caldeira (*School of Architecture*), Andrei Harwell (*School of Architecture*), Surry Schlabs (*School of Architecture*), Beka Sturges (*School of Architecture*)

Women's, Gender, and Sexuality Studies

Director of undergraduate studies: Igor De Souza
(igor.h.desouza@yale.edu); wgss.yale.edu

Genders and sexualities are powerful organizing forces: they shape identities and institutions, nations and economies, cultures and political systems. Careful study of gender and sexuality thus explains crucial aspects of our everyday lives on both intimate and global scales. Scholarship in Women's, Gender, and Sexuality Studies is interdisciplinary and wide ranging, drawing on history, literature, cultural studies, social sciences, and natural science to study genders and sexualities as they intersect with race, ethnicity, class, nationality, transnational processes, disability, and religion.

Students majoring in Women's, Gender, and Sexuality Studies take a series of core courses, develop an individual area of concentration, and write a yearlong or single-term senior essay. The program encourages work that is interdisciplinary, intersectional, international, and transnational. Individual concentrations evolve along with students' intellectual growth and academic expertise. Recent examples of concentrations include literature and queer aesthetics; transnational feminist practices; the intellectual history of civil rights activism; AIDS health policies; gender, religion, and international NGOs; women's health; food, sexuality, and lesbian community; and gender and sexuality in early education.

REQUIREMENTS OF THE MAJOR

Twelve term courses are required and this major may be taken either as a primary major or as one of two majors. Requirements include two intermediate courses selected from WGSS 205, 206, 207, or 340. Majors are strongly encouraged to take these intermediate courses during their first two years. The major also requires two methodology courses, five courses in an area of concentration, the Junior Research Seminar (WGSS 398), and a two-course senior requirement. The area of concentration consists of at least five courses, the majority of which should be drawn from program offerings. Substitutions to the major requirements may be made only with the written permission of the director of undergraduate studies (DUS).

Methodology courses Given its interdisciplinary nature, Women's, Gender, and Sexuality Studies necessarily relies on a wide range of methodologies: literary criticism, ethnography, visual analysis, historiography, and quantitative data analysis, among others. Each student is expected to acquire competence in at least two methodologies relevant to their concentration and planned senior essay. Students are advised to take the first of these courses during their first two years and to complete the two-course methods requirement in the junior year, in preparation for the senior essay.

Junior research seminar All students in the major must take WGSS 398, Junior Research Seminar, which provides majors the opportunity to examine, synthesize, and apply the interdisciplinary theory and methods to which they have been exposed while completing the intermediate course sequence and methodology requirement. (Individualized alternatives are found for students who study abroad during the junior year.)

SENIOR REQUIREMENT

The yearlong senior essay The two-term senior sequence consists of WGSS 490, Senior Colloquium, in which students begin researching and writing a senior essay, followed by WGSS 491, Senior Essay, in which students complete the essay. The senior essay is developed and written under the guidance and supervision of a WGSS-affiliated faculty member with expertise in the area of concentration. Students are expected to meet with their essay advisers on a regular basis.

The single-term senior essay Majors may opt to complete the senior essay requirement in an approved upper-level WGSS seminar in the fall or spring term, with the approval of the instructor, by writing a senior essay of twenty-five to forty-five pages in lieu of the course's normal writing requirements. Students who choose the single-term senior essay take one additional WGSS course of their choosing to fulfill the twelve-term-course requirement.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 12 term courses (incl senior requirement)

Specific courses required WGSS 398

Distribution of courses 2 intermediate courses; 2 methodology courses; 5 electives in area of concentration

Senior requirement Senior colloquium and senior essay (WGSS 490, 491); or single-term senior essay in an upper-level seminar and one additional elective

FACULTY ASSOCIATED WITH THE PROGRAM OF WOMEN'S, GENDER, AND SEXUALITY STUDIES

Professors Fatima El-Tayeb (*Ethnicity, Race, and Migration*), Roderick Ferguson (*Chair*), Scott Herring (*American Studies*), Margaret Homans (*English*), Regina Kunzel (*History*), Gail Lewis (*Visiting Professor of WGSS*), Dara Strolovitch, Kalindi Vora (*Ethnicity, Race, and Migration*), Laura Wexler (*American Studies*)

Associate Professors Joseph Fischel, Deb Vargas (*Ethnicity, Race, and Migration*)

Assistant Professors Eda Pepi, Evren Savci

Senior Lecturer Maria Trumpler

Lecturers Craig Canfield, Igor De Souza, Graeme Reid

Affiliated Faculty Julia Adams (*Sociology*), Rene Almeling (*Sociology*), Carol Armstrong (*History of Art*), Daniel Botsman (*History*), Claire Bowerman (*Linguistics*), Melanie Boyd (*Yale College, Dean of Student Affairs*), Marijeta Bozovic (*Slavic Languages and Literatures*), Jill Campbell (*English*), Hazel Carby (*Emerita*) (*African American Studies, American Studies*), Kang-i Sun Chang (*East Asian Languages and Literatures*), Becky Conekin (*History*), Deborah Davis (*Sociology, East Asian Studies*), Rohit De (*History*), Carolyn Dean (*History, French*), Robin Dembroff (*Philosophy*), Ron Eyerman (*Sociology*), Crystal Feimster (*African American Studies*), Marta Figlerowicz (*Comparative Literature, English*), Moira Fradinger (*Comparative Literature*), Glenda Gilmore (*History*), Jacqueline Goldsby (*African American Studies, American Studies*,

English), Gregg Gonsalves (*Law School, Public Health*), Inderpal Grewal (*Emerita*) (*American Studies*), Zareena Grewal (*American Studies, Religious Studies*), Dolores Hayden (*Emerita*) (*School of Architecture, American Studies*), Janet Henrich (*School of Medicine*), Marcia Inhorn (*Anthropology, Global Affairs*), Alice Kaplan (*French*), Jennifer Klein (*History*), Greta LaFleur (*American Studies*), Marianne LaFrance (*Emerita*) (*Psychology*), Hélène Landemore-Jelaca (*Political Science*), Kathryn Lofton (*American Studies, History, Religious Studies*), Lisa Lowe (*American Studies, Ethnicity, Race and Migration*), Mary Lui (*American Studies, History*), Deb Margolin (*Theater Studies*), Alka Menon (*Sociology*), Kobena Mercer (*History of Art, African American Studies*), Joanne Meyerowitz (*American Studies, History*), Alice Miller (*Law School, Public Health*), Elise Morrison (*Theater Studies*), Laura Nasrallah (*Religious Studies*), Priyamvada Natarajan (*Astronomy, Physics*), Tavia Nyong'o (*Theater Studies, American Studies*), John Pachankis (*Public Health*), Sally Promey (*American Studies, Institute of Sacred Music*), Ana Ramos-Zayas (*American Studies, Ethnicity, Race & Migration*), Judith Resnik (*Law School*), Juno Jill Richards (*English*), Naomi Rogers (*History, History of Science, Medicine & Public Health*), Frances Rosenbluth (*Political Science*), Alicia Schmidt Camacho (*American Studies, Ethnicity, Race & Migration*), William Summers (*Emeritus*) (*Molecular, Cellular, & Developmental Biology, History of Science, Medicine, & Public Health*), George Syrimis (*Hellenic Studies*), Rebecca Tannenbaum (*History*), Linn Tonstad (*Divinity School*), Jing Tsu (*East Asian Languages and Literatures, Comparative Literature*), Claudia Valeggia (*Anthropology*), Noel Valis (*Spanish & Portuguese*), Michael Warner (*English, American Studies*), Elisabeth Wood (*Political Science*)

See visual roadmap of the requirements.

THE WORK OF YALE UNIVERSITY

The work of Yale University is carried on in the following schools:

Yale College Est. 1701. Courses in humanities, social sciences, natural sciences, mathematical and computer sciences, and engineering. Bachelor of Arts (B.A.), Bachelor of Science (B.S.). 203 432-9300 <https://admissions.yale.edu>

Graduate School of Arts and Sciences Est. 1847. Courses for college graduates. Master of Arts (M.A.), Master of Science (M.S.), Master of Philosophy (M.Phil.), Doctor of Philosophy (Ph.D.). 203 432-2771 <https://gsas.yale.edu>

School of Medicine Est. 1810. Courses for college graduates and students who have completed requisite training in approved institutions. Doctor of Medicine (M.D.). Postgraduate study in the basic sciences and clinical subjects. Five-year combined program leading to Doctor of Medicine and Master of Health Science (M.D./M.H.S.). Combined program with the Graduate School of Arts and Sciences leading to Doctor of Medicine and Doctor of Philosophy (M.D./Ph.D.). Master of Medical Science (M.M.Sc.) from the Physician Associate Program and the Physician Assistant Online Program. 203 785-2643 <https://medicine.yale.edu/edu/>

Divinity School Est. 1822. Courses for college graduates. Master of Divinity (M.Div.), Master of Arts in Religion (M.A.R.). Individuals with an M.Div. degree may apply for the program leading to the degree of Master of Sacred Theology (S.T.M.). 203 432-5360 <https://divinity.yale.edu>

Law School Est. 1824. Courses for college graduates. Juris Doctor (J.D.). Graduate Programs: Master of Laws (LL.M.), Doctor of the Science of Law (J.S.D.), Master of Studies in Law (M.S.L.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 432-4995 <https://law.yale.edu>

School of Engineering & Applied Science Est. 1852. Courses for college graduates. Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 432-4252 <https://seas.yale.edu>

School of Art Est. 1869. Professional courses for college and art school graduates. Master of Fine Arts (M.F.A.). 203 432-2600 <http://art.yale.edu>

School of Music Est. 1894. Graduate professional studies in performance and composition. Certificate in Performance (CERT), Master of Music (M.M.), Master of Musical Arts (M.M.A.), Artist Diploma (A.D.), Doctor of Musical Arts (D.M.A.). 203 432-4155 <https://music.yale.edu>

School of the Environment Est. 1900. Courses for college graduates. Master of Forestry (M.F.), Master of Forest Science (M.F.S.), Master of Environmental Science (M.E.Sc.), Master of Environmental Management (M.E.M.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 800 825-0330 <https://environment.yale.edu>

School of Public Health Est. 1915. Courses for college graduates. Master of Public Health (M.P.H.), Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 785-2844 <https://publichealth.yale.edu>

School of Architecture Est. 1916. Courses for college graduates. Professional and post-professional degree: Master of Architecture (M.Arch.); nonprofessional degree: Master of Environmental Design (M.E.D.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 432-2296 <https://www.architecture.yale.edu>

School of Nursing Est. 1923. Courses for college graduates. Master of Science in Nursing (M.S.N.), Post Master's Certificate (P.M.C.), Doctor of Nursing Practice (D.N.P.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. 203 785-2389 <https://nursing.yale.edu>

David Geffen School of Drama Est. 1925. Courses for college graduates and certificate students. Master of Fine Arts (M.F.A.), Certificate in Drama, Doctor of Fine Arts (D.F.A.). 203 432-1507 <https://drama.yale.edu>

School of Management Est. 1976. Courses for college graduates. Master of Business Administration (M.B.A.), Master of Advanced Management (M.A.M.), Master of Management Studies (M.M.S.). Doctor of Philosophy (Ph.D.) awarded by the Graduate School of Arts and Sciences. <https://som.yale.edu>

Jackson School of Global Affairs Est. 2022. Courses for college graduates. Master in Public Policy (M.P.P) and Master of Advanced Study (M.A.S.). 203 432-6253 <https://jackson.yale.edu>

COURSES

A

- Accounting (ACCT)
- Aerospace Studies (USAF)
- African American Studies (AFAM)
- African Studies (AFST)
- Akkadian (AKKD)
- American Sign Language (ASL)
- American Studies (AMST)
- Ancient Greek (GREK)
- Anthropology (ANTH)
- Applied Mathematics (AMTH)
- Applied Physics (APHY)
- Arabic (ARBC)
- Archaeological Studies (ARCG)
- Architecture (ARCH)
- Armenian (ARMN)
- Art (ART)
- Astronomy (ASTR)

B

- Biology (BIOL)
- Biomedical Engineering (BENG)
- Bosnian-Serbian-Croatian (SBCR)
- British Studies (BRST)
- Burmese (BURM)

C

- Chemical Engineering (CENG)
- Chemistry (CHEM)
- Child Study (CHLD)
- Chinese (CHNS)
- Classical Civilization (CLCV)
- Classics (CLSS)
- Cognitive Science (CGSC)
- Comparative Literature (LITR)
- Computer Science (CPSC)
- Computer Science and Economics (CSEC)
- Computing and the Arts (CPAR)
- Czech (CZEC)

D

- Directed Studies (DRST)
- Dutch (DUTC)

E

- Earth and Planetary Sciences (EPS)
- East Asian Languages and Literatures (EALL)
- East Asian Studies (EAST)
- Ecology & Evolutionary Biology (E&EB)
- Economics (ECON)
- Education Studies (EDST)
- Egyptian (EGYP)
- Electrical Engineering (EENG)
- Energy Studies (ENRG)
- Engineering & Applied Science (ENAS)
- English Language and Literature (ENGL)
- Environmental Engineering (ENVE)
- Environmental Studies (EVST)
- Ethics, Politics, & Economics (EP&E)
- Ethnicity, Race, & Migration (ER&M)

F

- Film and Media Studies (FILM)
- Finnish (FNSH)
- French (FREN)

G

- German Studies (GMAN)
- Global Affairs (GLBL)
- Global Health Studies (HLTH)

H

- Hebrew (HEBR)
- Hindi (HNDI)
- History (HIST)
- History of Art (HSAR)
- History of Science, Medicine, and Public Health (HSHM)
- Human Rights Studies (HMRT)
- Humanities (HUMS)
- Hungarian (HGRN)

I

- Indonesian (INDN)
- Italian Studies (ITAL)

J

- Japanese (JAPN)
- Judaic Studies (JDST)

K

- Khmer (KHMR)
- Kiswahili (SWAH)
- Korean (KREN)

L

- Latin (LATN)
- Latin American Studies (LAST)
- Linguistics (LING)

M

- Mathematics (MATH)
- Mechanical Engineering (MENG)
- Modern Greek/Hellenic Studies (MGRK)
- Modern Middle East Studies (MMES)
- Modern Tibetan (MTBT)
- Molecular Biophysics and Biochemistry (MB&B)
- Molecular, Cellular, and Developmental Biology (MCDB)
- Music (MUSI)

N

- Naval Science (NAVY)
- Near Eastern Languages and Civilizations (NELC)
- Neuroscience (NSCI)

O

- Ottoman (OTTM)

P

- Persian (PERS)
- Philosophy (PHIL)
- Physics (PHYS)
- Polish (PLSH)
- Political Science (PLSC)
- Portuguese (PORT)

- Psychology (PSYC)
- Punjabi (PNJB)

R

- Religious Studies (RLST)
- Romanian (ROMN)
- Russian (RUSS)
- Russian, East European, and Eurasian Studies (RSEE)

S

- Sanskrit (SKRT)
- Science (SCIE)
- Sinhala (SNHL)
- Slavic Languages and Literatures (SLAV)
- Sociology (SOCY)
- South Asian Studies (SAST)
- Spanish (SPAN)
- Special Divisional Major (SPEC)
- Statistics and Data Science (S&DS)
- Study of the City (STCY)

T

- Tamil (TAML)
- The DeVane Lecture Course (DEVN)
- Theater and Performance Studies (THST)
- Tibetan (TBTN)
- Turkish (TKSH)
- Twi (TWI)

U

- Ukrainian (UKRN)
- Urban Studies (URBN)

V

- Vietnamese (VIET)

W

- Wolof (WLOF)
- Women's Gender and Sexuality Studies (WGSS)

Y

- Yoruba (YORU)

Z

- Zulu (ZULU)

Accounting (ACCT)

* ACCT 270a, Foundations of Accounting and Valuation Rick Antle

Modern accounting practices and their use in distinguishing value creation from value redistribution. Basic determinants of value and the techniques used to assess it; the creation of value through the production and delivery of goods or services; the conversion of that value into cash flows; basic financial statements, balance sheets, income statements, and cash flow statements, and the accounting mechanics with which they are built.

Aerospace Studies (USAF)

* USAF 101a, Heritage and Values of the U.S. Air Force I Greg Jeong

Introduction to the U.S. Air Force and how it works as a military institution, including an overview of its basic characteristics, missions, and organizations. Students attend one 50-minute lecture and one 110-minute laboratory each week. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

* USAF 200a, Team and Leadership Fundamentals I Daniel Gartland

This course focuses on laying the foundation for teamwork and leadership, particularly the skills that allow cadets to improve their leadership on a personal level and within a team. The course prepares cadets for their field training experience, where they are able to put the concepts learned into practice. The purpose of this course is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

* USAF 301a, Leading People and Effective Communication I Christopher Goad

Advanced study of leadership concepts and ethics, management and communication skills, and Air Force personnel and evaluation systems. Emphasis on the enhancement of leadership skills. Case studies and exercise of leadership and management techniques in a supervised environment. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

* USAF 411a, Foundations of American Airpower Staff

This course is an exploration of the evolution and employment of airpower in the United States military. The course is designed to give students an understanding of what role modern airpower plays in the use of national instruments of power; how American airpower has shaped U.S. grand strategy and vice versa. The course traces the development of airpower doctrine and strategy from World War I to modern day. Applications to deterrence theory, the role of technology, counterinsurgency/counterterrorism, and the "information revolution" are discussed.

African American Studies (AFAM)

* AFAM 060a / AMST 060a / HIST 016a, **Slavery in the Archives** Edward Rugemer

This first-year seminar explores the significance of racial slavery in the history of the Americas during the eighteenth and nineteenth centuries. We read the work of historians and we explore archival approaches to the study of history. Taught in the Beinecke Library with the assistance of curators and librarians, each week is organized around an archival collection that sheds light on the history of slavery. The course also includes visits to the Department of Manuscripts and Archives in the Sterling Library, the British Art Center, and the Yale University Art Gallery. Each student writes a research paper grounded in archival research in one of the Yale Libraries. Topics include slavery and slaveholding, the transatlantic slave trade, resistance to slavery, the abolitionist movement, the coming of the American Civil War, the process of emancipation, and post-emancipation experiences. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* AFAM 095b / HIST 001b, **African American Freedom Movements in the Twentieth Century** Crystal Feimster

Introduction to the study and writing of history, focusing on how African Americans fought for civil rights throughout the twentieth century. The civil rights movement placed in its historical context; African American freedom struggles placed in the larger narrative of U.S. history. Enrollment limited to freshmen. Preregistration required; see under Freshman Seminar Program. HU

AFAM 115b / WGSS 125b, **“We Interrupt this Program: The Multidimensional Histories of Queer and Trans Politics”** Roderick Ferguson

In 1991, the arts organizations Visual AIDS and The Kitchen collaborated with video artist and filmmaker Charles Atlas to produce the live television broadcast “We Interrupt this Program.” Part educational presentation, part performance piece, the show was aired in millions of homes across the nation. The program, in The Kitchen’s words, “sought to feature voices that had often been marginalized within many discussions of AIDS, in particular people of color and women.” This course builds upon and is inspired by this aspect of Atlas’s visionary presentation, an aspect that used the show to produce a critically multicultural platform that could activate cultural histories and critical traditions from various communities. In effect, the course uses this aspect as a metonym for the racial, gender, sexual, and class heterogeneity of queer art and organizing. It conducts its investigation by looking at a variety of primary materials that illustrate the heterogeneous makeup of queer and trans politics. The course also draws on more recent texts and visual works that arose from the earlier contexts that the primary texts helped to illuminate and shape. HU RP o Course cr

AFAM 146b / ECON 171b / EDST 271b, **Urban Inequalities and Educational Inequality** Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K-12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course

in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. SO

AFAM 160a / AFST 184a / AMST 160a / HIST 184a, The Rise and Fall of Atlantic Slavery Staff

The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

AFAM 162b / AMST 162b / HIST 187b, African American History from Emancipation to the Present Elizabeth Hinton

An examination of the African American experience since 1861. Meanings of freedom and citizenship are distilled through appraisal of race and class formations, the processes and effects of cultural consumption, and the grand narrative of the civil rights movement. WR, HU o Course cr

AFAM 164b / PLSC 263b / URBN 304b, The Politics of "The Wire": HBO's Portrayal of the American City Allison Harris

This class uses HBO's groundbreaking series "The Wire" to investigate cities, their problems, and their politics. We watch all five seasons of the show as social scientists and use it to learn about important social scientific concepts and theories, and apply those theories to such phenomena as the politics of crime, policing, and local elections. Each week, the assigned readings—articles and book excerpts from political science as well as other social sciences—highlight the social scientific concepts displayed in the assigned episodes and provide context for lectures. All of the assignments work together to expose students to social science, how social science is conducted, and how political science can help us better understand the world around us. SO o Course cr

AFAM 186a / LAST 214a / PLSC 378a / SOCY 170a, Contesting Injustice Staff

Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. SO o Course cr

AFAM 192a / AFST 238a / AMST 238a / ER&M 238a, Third World Studies Staff

Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice. Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

AFAM 198b / CGSC 277b / EDST 177b / EP&E 494b / PHIL 177b, Propaganda, Ideology, and Democracy Jason Stanley

Historical, philosophical, psychological, and linguistic introduction to the issues and challenges that propaganda raises for liberal democracy. How propaganda can work to undermine democracy; ways in which schools and the press are implicated; the use of propaganda by social movements to address democracy's deficiencies; the legitimacy of propaganda in cases of political crisis. HU o Course cr

*** AFAM 205a / AMST 225a / ER&M 289a, Writing American Studies: Food as Story & Critical Lens** Alison Kibbe

This writing seminar examines food as an entry to the interdisciplinary approaches of American Studies. We explore how food can help us think critically about our

world, as well as how we can write critically about food. Food serves as a useful entry point to interdisciplinary American and Ethnic Studies because centering food requires that we think across history, cultural studies, anthropology, science, ecology, aesthetics, embodiment, and more. Through food studies we gain a unique understanding of the peoples, cultures, plants, animals, mobilities, and flavors that shape societies, communities, and individuals. With a focus on Caribbean, Black, Latinx, and indigenous perspectives, we use critical food studies to examine questions about place, history, racial formations, migration, and above all, different approaches to writing, drafting, editing, and re-writing. WR

* **AFAM 206a / ENGL 234a, Literature of the Black South** Sarah Mahurin
Examination of the intersections between African American and Southern literatures, with consideration of the ways in which the American South remains a space that simultaneously represents and repels an African American ethos. HU

* **AFAM 217a / THST 227a, Queer Caribbean Performance** Amanda Reid
With its lush and fantastic landscape, fabulous carnivalesque aesthetics, and rich African Diaspora Religious traditions, the Caribbean has long been a setting where New World black artists have staged competing visions of racial and sexual utopia and dystopia. However, these foreigner-authored fantasies have often overshadowed the lived experience and life storytelling of Caribbean subjects. This course explores the intersecting performance cultures, politics, and sensual/sexual practices that have constituted queer life in the Caribbean region and its diaspora. Placing Caribbean queer of color critique alongside key moments in twentieth and twenty-first century performance history at home and abroad, we ask how have histories of the plantation, discourses of race and nation, migration, and revolution led to the formation of regionally specific queer identifications. What about the idea of the “tropics” has made it such as fertile ground for queer performance making, and how have artists from the region identified or dis-identified with these aesthetic formations? This class begins with an exploration of theories of queer diaspora and queer of color critique’s roots in black feminisms. We cover themes of exile, religious rites, and organizing as sights of queer political formation and creative community in the Caribbean. HU

* **AFAM 239a / AMST 461a / EDST 209a / ER&M 292a / WGSS 202a, Identity, Diversity, and Policy in U.S. Education** Craig Canfield
Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

* **AFAM 243a / AMST 243a / MUSI 450a, Black Arts Criticism: Intellectual Life of Black Culture from W.E.B. DuBois to the 21st Century** Daphne Brooks
This course traces the birth and evolution of Black arts writing and criticism—its style and content, its major themes and groundbreaking practices—from the late nineteenth century through the 2020s. From the innovations of W.E.B. DuBois, Pauline Hopkins, and postbellum Black arts journalists to the breakthroughs of Harlem Renaissance heavyweights (Zora Neale Hurston, Langston Hughes and others), from the jazz experimentalism of Ralph Ellison and Albert Murray to the revolutionary criticism of Amiri Baraka, Lorraine Hansberry, James Baldwin, Phyl Garland and others, this class

explores the intellectual work of pioneering writers who produced radical knowledge about Black culture. Its second half turns to the late twentieth and twenty-first century criticism of legendary arts journalists, scholars and critics: Toni Morrison, Thulani Davis, Margo Jefferson, Hilton Als, Greg Tate, Farah J. Griffin, Joan Morgan, Danyel Smith, Wesley Morris, Hanif Abdurraqib, and others. Emphasis will be placed on music, literary, film, and theater/performance arts writing. Prerequisite: one or more AFAM courses. HU RP

*** AFAM 244a / PLSC 200a, The Politics of Crime and Punishment in American Cities**
Allison Harris

This course explores the relationship between politics and crime and punishment. We review literature focused on political behavior and political institutions to better understand the phenomena we hear about in the news from sentencing algorithms, to felon (dis)enfranchisement, to stop-and-frisk, and police use of force. SO

*** AFAM 259b / AMST 309b / EDST 255b, Education and Empire** Talya Zemach-Bersin

This course offers an introduction to the transnational history of education in relation to the historical development of the U.S. empire both at home and abroad. By bringing together topics often approached separately – immigration, education, race, colonialism, and the history of U.S. empire – we interrogate the ways that education has been mobilized to deploy power: controlling knowledge, categorizing and policing differences, administering unequal paths to citizenship/belonging, forcing assimilation, promoting socio-economic divides, and asserting discipline and control. EDST 110 recommended. HU

*** AFAM 261a / AMST 263a / EDST 263a, Place, Race, and Memory in Schools** Errol Saunders

In the wake of the Black Lives Matter movement and widespread, multiracial protests calling for racial justice across the United States, there is a renewed interest in the roles that schools play in perpetuating racial disparities in American society and the opportunities that education writ large might provide for remedying them. As *places*, schools both shape and are profoundly shaped by the built environment and the everyday experiences of the people that interact with them. Teachers, administrators, students, and parents are impacted by the racialized memories to explain the past, justify the present, and to move them to action for the future. These individual and collective memories of who and where they are, and the traumas, successes, failures, and accomplishments that they have with regard to school and education are essential to understanding how schools and school reforms work. Grounded in four different geographies, this course examines how the interrelationships of place, race, and memory are implicated in reforms of preK-12 schools in the United States. The course uses an interdisciplinary approach to study these phenomena, borrowing from commensurate frameworks in sociology, anthropology, political science, and memory studies with the goal of examining multiple angles and perspectives on a given issue. EDST 110 recommended. SO

*** AFAM 313a / THST 319a, Embodying Story** Renee Robinson

The intersection of storytelling and movement as seen through historical case studies, cross-disciplinary inquiry, and studio practice. Drawing on eclectic source materials from different artistic disciplines, ranging from the repertory of Alvin Ailey to journalism, architectural studies, cartoon animation, and creative processes, students

develop the critical, creative, and technical skills through which to tell their own stories in movement. No prior dance experience necessary. HU

* **AFAM 315a / WGSS 305a, Black Feminist Theory** Gail Lewis

This course is designed to introduce you to some of the major themes in black feminist theory. The course does so by presenting classic texts with more recent ones to give you a sense of the vibrancy of black feminist theory for addressing past and present concerns. Rather than interpret black feminist theory as a critical formation that simply puts race, gender, sexuality, and class into conversation with one another, the course apprehends that formation as one that produced epistemic shifts in how we understand politics, empire, history, the law, and literature. This is by no means an exhaustive list of the areas into which black feminism intervened. It is merely a sample of some of the most vibrant ideological and discursive contexts in which black feminism caused certain epistemic transformations. SO

* **AFAM 329a / SOCY 342a, Managing Blackness in a "White Space"** Elijah Anderson

White space" is a perceptual category that assumes a particular space to be predominantly white, one where black people are typically unexpected, marginalized when present, and made to feel unwelcome—a space that blacks perceive to be informally "off-limits" to people like them and where on occasion they encounter racialized disrespect and other forms of resistance. This course explores the challenge black people face when managing their lives in this white space. SO

* **AFAM 349b / AMST 326b / HIST 115Jb / WGSS 388b, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

* **AFAM 352a / AMST 438a / ER&M 291a / LITR 295a / WGSS 343a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

* **AFAM 368a / FREN 378a, Zombies, Witches, Goddesses: Disorderly Women in Francophone Fiction** Kaiama Glover

This course explores configurations of the feminine as a force of disorder in prose fiction works of the 20th-century French- and Creole-speaking Americas. How do certain kinds of women characters reflect the troubling realities of the communities in which they are embedded? What alternative modes of being might these women's non- or even anticomunal practices of freedom suggest? How are matters of the erotic, the spiritual, and the maternal implicated in Caribbean women's relationships to their communities? Through slow and careful readings of literary fiction and critical theory, we examine the 'troubling' heroines presented in prose fiction works by francophone Caribbean authors of both genders, considering the thematic intersections and common

formal strategies that emerge in their writing. We consider in particular the symbolic value of the 'zombie,' the 'witch,' the 'goddess,' and other provocative characters as so many reflections on—and of—social phenomena that mark the region and its history.

WR, HU

*** AFAM 397a / ER&M 380a / WGSS 381a, New Developments in Global African Diaspora Studies** Fatima El-Tayeb

This course traces recent developments in African Diaspora Theory, among them Afropessimism, Queer of Color Critique, Black Trans Studies and Afropolitanism. We pay particular attention to interactions between theory, art, and activism. The scope is transnational with a focus on, but not restricted to, the Anglophone Diaspora Texts. Each session roughly follows this structure: One theoretical text representing a recent development in African diaspora studies, one earlier key text that the reading builds on, one theoretical text that does not necessarily fall under the category of diaspora studies but speaks to our topic and one text that relates to the topic but uses a non-theoretical format. Students are expected to develop their own thematically related project over the course of the semester. Preference give to juniors and seniors. Email instructor for more information. HU, SO

*** AFAM 410b, Interdisciplinary Approaches to African American Studies** Staff

An interdisciplinary, thematic approach to the study of race, nation, and ethnicity in the African diaspora. Topics include class, gender, color, and sexuality; the dynamics of reform, Pan-Africanism, neocolonialism, and contemporary black nationalism. Use of a broad range of methodologies. WR, HU, SO

*** AFAM 426b / AMST 443b / ENGL 381b, Toni Morrison & the Matter of Black Life**
Daphne Brooks

This seminar examines key texts in the Toni Morrison canon that resonate as literary masterworks, innovative in narrative and aesthetic structure as well as content, and also as historical studies, expansive and probing in their interrogations of past struggles and future possibilities for African American communities and the American body politic more broadly. We consider how her novels explore the ongoing disasters that were and are settler colonialism, the Middle Passage and the Atlantic slave trade, the systemic violence of Jim Crow segregation, the violence of patriarchy, the traumas of war and American empire, and the insidious presence of misogyny in the everyday lives of her characters. But, we also look closely at the richness of love and intimacy, the radical roots of self-fashioning, and the insurgent potentiality of mobility and aesthetic creativity coursing through the lives of her protagonists who cut a fugitive path out of slavery, ride the waves of Reconstruction, the Great Migration, Civil Rights era hope and organizing, and post-Soul searching. We read key scholarship in direct conversation with Morrison's oeuvre, and we examine her robust and demanding critical essays on American literature, on contemporary events, and on the topic of writing. HU RP

*** AFAM 455a / EDST 340a / ER&M 438a, Anti-Racist Curriculum and Pedagogy**
Daniel HoSang

This seminar explores the pedagogical and conceptual tools, resources and frameworks used to teach about race and racism at the primary and secondary levels, across diverse disciplines and subject areas. Moving beyond the more limited paradigms of racial colorblindness and diversity, the seminar introduces curricular strategies for

centering race and racism in ways that are accessible to students from a broad range of backgrounds, and that work to advance the overall goals of the curriculum. so

* **AFAM 457a / AFST 457a / AMST 470a / ER&M 467a / FREN 481a, Racial Republic:**

African Diasporic Literature and Culture in Postcolonial France Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the "beur" author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements.

HU

* **AFAM 479a / MUSI 480a, Music of the Caribbean: Cuba and Jamaica** Michael Veal

An examination of the Afro-diasporic music cultures of Cuba and Jamaica, placing the historical succession of musical genres and traditions into social, cultural, and political contexts. Cuban genres studied include religious/folkloric traditions (Lucumi/Santeria and Abakua), rumba, son, mambo, pachanga/charanga, salsa, timba and reggaeton. Jamaican genres studied include: folkloric traditions (etu/tambu/kumina), Jamaican R&B, ska, rock steady, reggae, ragga/dancehall. Prominent themes include: slavery, Afro-diasporic cultural traditions, Black Atlantic culture, nationalism/independence/post-colonial culture, relationships with the United States, music & gender/sexuality, technology. HU

* **AFAM 480a, Senior Colloquium: African American Studies** Elizabeth Hinton

A seminar on issues and approaches in African American studies. The colloquium offers students practical help in refining their senior essay topics and developing research strategies. Students discuss assigned readings and share their research experiences and findings. During the term, students are expected to make substantial progress on their senior essays; they are required to submit a prospectus, an annotated bibliography, and a draft of one-quarter of the essay.

* **AFAM 491a or b, The Senior Essay** Elizabeth Hinton

Independent research on the senior essay. The senior essay form must be submitted to the director of undergraduate studies by the end of the second week of classes. The senior essay should be completed according to the following schedule: (1) end of the sixth week of classes: a rough draft of the entire essay; (2) end of the last week of classes (fall term) or three weeks before the end of classes (spring term): two copies of the final version of the essay.

African Studies (AFST)

AFST 184a / AFAM 160a / AMST 160a / HIST 184a, The Rise and Fall of Atlantic Slavery Staff

The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

AFST 238a / AFAM 192a / AMST 238a / ER&M 238a, Third World Studies Staff

Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice. Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

*** AFST 277a / ANTH 235a / ER&M 277a, Introduction to Critical Border Studies** Leslie Gross-Wyrtzen

This course serves as an introduction into the major themes and approaches to the study of border enforcement and the management of human mobility. We draw upon a diverse range of scholarship across the social sciences as well as history, architecture, and philosophy to better understand how we find ourselves in this present “age of walls” (Tim Marshall 2019). In addition, we take a comparative approach to the study of borders—examining specific contemporary and historical cases across the world in order to gain a comprehensive view of what borders are and how their meaning and function has changed over time. And because there is “critical” in the title, we explicitly evaluate the political consequences of borders, examine the sorts of resistances mobilized against them, and ask what alternative social and political worlds might be possible. SO

*** AFST 285a / EDST 283a, Children's Literature in Africa** Staff

This course introduces students to oral and written literature by/for and/or about children in Africa: from its oral origins in riddles, lullabies, playground verse, and folk narratives, to written texts in the form of drama, poetry, and prose. The course examines representative texts of the genre to address its historical background/development and explore its distinctive (literary) qualities. Major themes and social issues that are dealt with in African children's literature (including cultural notions of childhood, gender, and power) as well as critical approaches to the genre are considered. HU

*** AFST 366a / EP&E 305a / HIST 367a / PLSC 364a, Bureaucracy in Africa: Revolution, Genocide, and Apartheid** Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

AFST 381b / PLSC 381b, Government and Politics in Africa Katharine Baldwin

The establishment and use of political power in selected countries of tropical Africa. The political role of ethnic and class cleavages, military coups, and the relation between politics and economic development. SO o Course cr

* **AFST 385a / EP&E 350a / HIST 391a / HLTH 385a / PLSC 429a, Pandemics in Africa: From the Spanish Influenza to Covid-19** Jonny Steinberg

The overarching aim of the course is to understand the unfolding Covid-19 pandemic in Africa in the context of a century of pandemics, their political and administrative management, the responses of ordinary people, and the lasting changes they wrought. The first eight meetings examine some of the best social science-literature on 20th-century African pandemics before Covid-19. From the Spanish Influenza to cholera to AIDS, to the misdiagnosis of yaws as syphilis, and tuberculosis as hereditary, the social-science literature can be assembled to ask a host of vital questions in political theory: on the limits of coercion, on the connection between political power and scientific expertise, between pandemic disease and political legitimacy, and pervasively, across all modern African epidemics, between infection and the politics of race. The remaining four meetings look at Covid-19. We chronicle the evolving responses of policymakers, scholars, religious leaders, opposition figures, and, to the extent that we can, ordinary people. The idea is to assemble sufficient information to facilitate a real-time study of thinking and deciding in times of radical uncertainty and to examine, too, the consequences of decisions on the course of events. There are of course so many moving parts: health systems, international political economy, finance, policing, and more. We also bring guests into the classroom, among them frontline actors in the current pandemic as well as veterans of previous pandemics well placed to share provisional comparative thinking. This last dimension is especially emphasized: the current period, studied in the light of a century of epidemic disease, affording us the opportunity to see path dependencies and novelties, the old and the new. SO

* **AFST 425b / FREN 425b / MMES 360b, North African French Poetry** Thomas Connolly

Introduction to North African poetry composed in French during the twentieth and twenty-first centuries. Works explored within the broader context of metropolitan French, Arabic, and Berber cultures; juxtaposition with other modes of expression including oral poetry, painting, dance, music, the Internet, and film. The literary, aesthetic, political, religious, and philosophical significance of poetic discourse. HU

* **AFST 435a / THST 335a, West African Dance: Traditional to Contemporary** Lacina Coulibaly

A practical and theoretical study of the traditional dances of Africa, focusing on those of Burkina Faso and their contemporary manifestations. Emphasis on rhythm, kinesthetic form, and gestural expression. The fusion of modern European dance and traditional African dance. Admission by audition during the first class meeting. HU RP

* **AFST 457a / AFAM 457a / AMST 470a / ER&M 467a / FREN 481a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period

of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the "beur" author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements.

HU

* **AFST 465a / ANTH 468a / HSHM 413a / URBN 400 / URBN 442a, Infrastructures of Empire: Control and (In)security in the Global South** Leslie Gross-Wyrtzen

This advanced seminar examines the role that infrastructure plays in producing uneven geographies of power historically and in the "colonial present" (Gregory 2006). After defining terms and exploring the ways that infrastructure has been conceptualized and studied, we analyze how different types of infrastructure (energy, roads, people, and so on) constitute the material and social world of empire. At the same time, infrastructure is not an uncontested arena: it often serves as a key site of political struggle or even enters the fray as an unruly actor itself, thus conditioning possibilities for anti-imperial and decolonial practice. The geographic focus of this course is the African continent, but we explore comparative cases in other regions of the majority and minority world.

SO

* **AFST 485b, Literature, Life, and Thought in West Africa from mid-1800s to 1960s**
Staff

This seminar focuses on the genres of writing (journalism, expository and analytical prose, imaginative writing) that were used by the "Natives" in West Africa to generate a discourse of philosophical struggle against colonial domination. It examines the role of the institution of writing in shaping modern Africa, particularly how it transformed culture, beliefs, identity, established narratives, and conceptions of the new African nation. The currents of thought and debate, and the range of positions advanced by West African thinkers that shaped life and letters in British West Africa from the mid-1800s to the 1960s are dealt with. Attention is given to the the essay and the newspaper that were dominant during the colonial period, and the mainly imaginative literature—short stories, poetry, plays, and novels— in the era of the new African state.

HU

Akkadian (AKKD)

AKKD 110a, Elementary Akkadian I Parker Zane

Akkadian was one of the primary languages of ancient Mesopotamia (modern Iraq), with an attested history of more than 2000 years (from the second half of the 3rd millennium BCE to the beginning of the Common Era). It is a Semitic language, similar to Arabic, Aramaic, and Hebrew, written on clay tablets in the Cuneiform script. Hundreds of thousands of documents in Akkadian have come down to us. They include everything from great works of literature like the Gilgamesh Epic, to everyday texts such as letters that document the lives of people from all walks of life, from great kings to commoners and slaves. Whether it be a letter to a paranoid emperor who refuses to eat and shuts himself in his own palace, or a particularly inept spy reporting to his superiors about the suspicious dreams of a suspected enemy of the state, knowledge of

Akkadian opens a window into the world of those who lived thousands of years ago, the struggles they faced and the stories they told. Akkadian for Beginners provides students with the tools to begin to explore that ancient and once-forgotten world of ancient Mesopotamia. After finishing the course, students will have acquired a sound knowledge of Akkadian grammar and syntax, along with practice in Cuneiform. L1

AKKD 120b, Elementary Akkadian II Parker Zane

Continuation of AKKD 110. Prerequisite: AKKD 110. L2 RP

American Sign Language (ASL)

ASL 110a, American Sign Language I Staff

An introduction to American Sign Language (ASL), with emphasis on vocabulary, ASL grammar, Deaf Culture and Conversational skills. Use of visual material (DVD), communicative activities, grammar drills, classifiers and Deaf Culture study. ASL 120 is not required to earn credit for ASL 110 L1 1½ Course cr

* **ASL 130a, American Sign Language III** Staff

Building on ASL 120, this course covers in depth the structure of ASL grammar, fingerspelling, narratives, and visual communication. Students develop expressive and receptive skills in storytelling and dialogue. Prerequisites: ASL 120 or a placement evaluation by professor. L3 1½ Course cr

* **ASL 150a, Critical Issues Facing Deaf People in Society** Julia Silvestri

This course acquaints students with knowledge of d/Deaf and Hard of Hearing (DHH) people by surveying critical issues in how DHH people have been perceived and portrayed throughout history, how DHH and hearing people have advocated together for their civil rights, and how sign language studies, performance arts, and media have been instrumental in promoting these rights. As part of their studies, students create an ASL media or performance arts production that is reflective of this process. Students complete the course with a greater understanding of factors impacting language studies in the Deaf community, awareness of their own roles as members of the ASL community, and the ability to address sociocultural issues in tandem with Deaf communities and broader sign language communities. Prerequisite: ASL 140 or advanced ASL proficiency. L5

American Studies (AMST)

* **AMST 012a / HIST 012a, Politics and Society in the United States after World War II** Jennifer Klein

Introduction to American political and social issues from the 1940s to the present, including political economy, civil rights, class politics, and gender roles. Legacies of the New Deal as they played out after World War II; the origins, agenda, and ramifications of the Cold War; postwar suburbanization and its racial dimensions; migration and immigration; cultural changes; social movements of the Right and Left; Reaganism and its legacies; the United States and the global economy. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **AMST 019b / HIST 018b, Commodities as U.S. History** Matthew Jacobson

American social, cultural, and political history introduced through study of the production, distribution, and consumption of common commodities. Topics include

political economy, slavery, industrialization, labor, the rise of the corporation, the growth of the administrative and regulatory state, geopolitics, foreign policy, and cultural change. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. RP

* **AMST 031a / WGSS 031a, LGBTQ Spaces and Places** Terrell Herring
Overview of LGBTQ cultures and their relation to geography in literature, history, film, visual culture, and ethnography. Discussion topics include the historical emergence of urban communities; their tensions and intersections with rural locales; race, sexuality, gender, and suburbanization; and artistic visions of queer and trans places within the city and without. Emphasis is on the wide variety of U.S. metropolitan environments and regions, including New York City, Los Angeles, Miami, the Deep South, Appalachia, New England, and the Pacific Northwest. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **AMST 032a / WGSS 036a, Gender, Sexuality, and U.S. Empire** Talya Zemach-Bersin
This course explores the cultural history of America's relationship to the world across the long twentieth century with particular attention to the significance of gender, sexuality, and race. We locate U.S. culture and politics within an international dynamic, exposing the interrelatedness of domestic and foreign affairs. While exploring specific geopolitical events like the Spanish-American War, World War I and II, and the Cold War, this course emphasizes the political importance of culture and ideology rather than offering a formal overview of U.S. foreign policy. How have Americans across the twentieth century drawn from ideas about gender to understand their country's relationship to the wider world? In what ways have gendered ideologies and gendered approaches to politics shaped America's performance on the world's stage? How have geopolitical events impacted the construction of race and gender on the home front? In the most general sense, this course is designed to encourage students to understand American cultural and gender history as the product of America's engagement with the world. In so doing, we explore the rise of U.S. global power as an enterprise deeply related to conceptions of race, sexuality, and gender. We also examine films, political speeches, visual culture, music, and popular culture. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **AMST 060a / AFAM 060a / HIST 016a, Slavery in the Archives** Edward Rugemer
This first-year seminar explores the significance of racial slavery in the history of the Americas during the eighteenth and nineteenth centuries. We read the work of historians and we explore archival approaches to the study of history. Taught in the Beinecke Library with the assistance of curators and librarians, each week is organized around an archival collection that sheds light on the history of slavery. The course also includes visits to the Department of Manuscripts and Archives in the Sterling Library, the British Art Center, and the Yale University Art Gallery. Each student writes a research paper grounded in archival research in one of the Yale Libraries. Topics include slavery and slaveholding, the transatlantic slave trade, resistance to slavery, the abolitionist movement, the coming of the American Civil War, the process of emancipation, and post-emancipation experiences. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

*** AMST 070b / ENGL 067b / HUMS 067b, The Road in Literature and Film** Steven Shoemaker

Stories about journeys are at the heart of some of the most powerful works of art and literature that humankind has produced, from the time of Homer's *Odyssey* onward, and the trope of the journey has played an especially prominent role in American literature and film. In this course, we look at modern and contemporary examples of books and films that explore "the road" both as a path to freedom and discovery and as a site of hardship and precarity. Along the way, we examine quests for personal enlightenment, flights from economic and political oppression, and attempts to locate some "elsewhere" that's more exciting than home. Works of literature are likely to include Walt Whitman's "Song of the Open Road," Jack Kerouac's *On the Road*, John Steinbeck's *The Grapes of Wrath*, Muriel Rukeyser's *U.S. 1*, Jesmyn Ward's *Sing, Unburied, Sing*, and Colson Whitehead's *The Underground Railroad*. Films are likely to include Sullivan's *Travels*, *It Happened One Night*, *Easy Rider*, *Thelma and Louise*, and *Into the Wild*. WR, HU

AMST 115a / EDST 110a / SOCY 112a, Foundations in Education Studies Staff

Introduction to key issues and debates in the U.S. public education system. Focus on the nexus of education practice, policy, and research. Social, scientific, economic, and political forces that shape approaches to schooling and education reform. Theoretical and practical perspectives from practitioners, policymakers, and scholars. SO
o Course cr

AMST 116b / RLST 115b, How to Build an American Religion Kathryn Lofton

How communities can be organized through code, charisma, ritual, and cosmology. Topics include strategies for concretizing utopia and establishing communal principles, expanding audiences, and specifying creed. This course serves as an introduction to religion through theoretical readings and specific examples drawn from the transnational American scene, past and present. Discussion of particular leaders, sects, practices, and media will offer insights into how ideas organize societies and individuals establish themselves as icons. Students adapt strategies taught in the course in order to practice their own capacity to foster social movements, develop and critique brands, and consider the relationship between religion, politics, and economy. HU o Course cr

AMST 133b / ER&M 187b / HIST 107b, Introduction to American Indian History
Ned Blackhawk

Survey of American Indian history, beginning with creation traditions and migration theories and continuing to the present day. Focus on American Indian nations whose homelands are located within the contemporary United States. Complexity and change within American Indian societies, with emphasis on creative adaptations to changing historical circumstances. HU o Course cr

AMST 160a / AFAM 160a / AFST 184a / HIST 184a, The Rise and Fall of Atlantic Slavery Staff

The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

AMST 162b / AFAM 162b / HIST 187b, African American History from Emancipation to the Present Elizabeth Hinton

An examination of the African American experience since 1861. Meanings of freedom and citizenship are distilled through appraisal of race and class formations, the processes and effects of cultural consumption, and the grand narrative of the civil rights movement. WR, HU o Course cr

AMST 197a / ARCH 280a / HSAR 219a / URBN 280a, American Architecture and Urbanism Elihu Rubin

Introduction to the study of buildings, architects, architectural styles, and urban landscapes, viewed in their economic, political, social, and cultural contexts, from precolonial times to the present. Topics include: public and private investment in the built environment; the history of housing in America; the organization of architectural practice; race, gender, ethnicity and the right to the city; the social and political nature of city building; and the transnational nature of American architecture. HU o Course cr

AMST 199b / HIST 165b, The American Century Beverly Gage

United States politics, political thought, and social movements in the 20th century. Pivotal elections and political figures (Wilson, Roosevelt, Nixon, Reagan) as well as politics from below (civil rights, labor, women's activism). Emphasis on political ideas such as liberalism, conservatism, and radicalism, and on the intersection between domestic and foreign affairs. Primary research in Yale archival collections. Students who have already completed HIST 136J must have the instructor's permission to enroll in this course, and will perform alternate readings during some weeks. HU o Course cr

AMST 215a / HIST 485a / HSHM 217a / HUMS 219a, Biomedical Futures and Michael Crichton's Monsters Staff

What forms of life have been produced by modern science? The literal life-changing technologies that began to emerge after the Second World War also provoked new anxieties. They expressed themselves in the speculative fiction of Michael Crichton in terms of monsters: the virus in *The Andromeda Strain*, the androids in *Westworld*, the velociraptors of *Jurassic Park*, and even the patients maimed by gunshot wounds in *ER*. Crichton wrote thrilling stories that also asked his readers to consider what monsters humans could make if they didn't stop to consider whether or not they should. This course examines the emergence of modern life science to consider what it would take to produce more life-sustaining futures. HU, SO o Course cr

*** AMST 218b / WGSS 218b, Sex, Gender, and American Moderns** Terrell Herring

What did being "modern" mean to those whose marginalized aesthetics negotiated sexual, racial, regional, national, and gender norms in the first half of the twentieth-century United States? This course functions as an intensive immersion into the creeds and concerns of recent scholarship regarding modes of U.S. modernity as the field overlaps with current forays into sexuality and gender studies. Via painting, photography, print culture, a "homosexual comedy," oral history and other resources, we discuss the popularization of heteronormativity in US sex manuals; the emergence of LGBTQ subcultures within and without urban East Coast environments; queer feminist agency through experimental photography in Provincetown; slumming and sensationalism in the Chicago Loop; and modern crip intimacies in Connecticut. Students meet the artists of the PaJaMa collective; James Weldon Johnson's *Ex-Colored Man*; avant-garde Pacific Rim poets such as José García Villa; a Nepali American

surrealist; and a bohemian of the Harlem Renaissance whose drawings are held at the Beinecke. HU

*** AMST 225a / AFAM 205a / ER&M 289a, Writing American Studies: Food as Story & Critical Lens** Alison Kibbe

This writing seminar examines food as an entry to the interdisciplinary approaches of American Studies. We explore how food can help us think critically about our world, as well as how we can write critically about food. Food serves as a useful entry point to interdisciplinary American and Ethnic Studies because centering food requires that we think across history, cultural studies, anthropology, science, ecology, aesthetics, embodiment, and more. Through food studies we gain a unique understanding of the peoples, cultures, plants, animals, mobilities, and flavors that shape societies, communities, and individuals. With a focus on Caribbean, Black, Latinx, and indigenous perspectives, we use critical food studies to examine questions about place, history, racial formations, migration, and above all, different approaches to writing, drafting, editing, and re-writing. WR

AMST 228a / GLBL 201a / HIST 128a, Origins of U.S. Global Power Staff

This course examines the causes and the consequences of American global power in the “long 20th century,” peeking back briefly into the 19th century as well as forward into the present one. The focus is on foreign relations, which includes but is not limited to foreign policy; indeed, America’s global role was rooted as much in its economic and cultural power as it was in diplomacy and military strength. We study events like wars, crises, treaties, and summits – but also trade shows and movie openings. Our principal subjects include plenty of State Department officials, but also missionaries, business people, and journalists. We pay close attention also to conceptions of American power; how did observers in and beyond the United States understand the nature, origins, and operations of American power? HU o Course cr

*** AMST 233a / ER&M 286a / WGSS 232a, Porvida: Latinx Queer Trans Life** Deb Vargas

This course provides an introduction to Latinx queer trans* studies. We approach the field of Latinx queer trans* studies as an ongoing political project that emerges from social justice activism, gay/lesbian/queer/trans studies, critical race feminism, cultural practitioners, among other work. We pay particular attention to the keywords “trans,” “queer,” “Chicanx,” and “Latinx” by placing them in productive tension with each other through varied critical genealogies. HU, SO

AMST 234b / ER&M 243b / HIST 188b / RLST 342b, Spiritual But Not Religious Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

AMST 236b / EVST 318b / HIST 199b / HSHM 207b, American Energy History Paul Sabin

The history of energy in the United States from early hydropower and coal to present-day hydraulic fracturing, deepwater oil, wind, and solar. Topics include energy transitions and technological change; energy and democracy; environmental justice and public health; corporate power and monopoly control; electricity and popular culture;

labor struggles; the global quest for oil; changing national energy policies; the climate crisis. WR, HU o Course cr

AMST 238a / AFAM 192a / AFST 238a / ER&M 238a, Third World Studies Staff
Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice. Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

* **AMST 243a / AFAM 243a / MUSI 450a, Black Arts Criticism: Intellectual Life of Black Culture from W.E.B. DuBois to the 21st Century** Daphne Brooks
This course traces the birth and evolution of Black arts writing and criticism—its style and content, its major themes and groundbreaking practices—from the late nineteenth century through the 2020s. From the innovations of W.E.B. DuBois, Pauline Hopkins, and postbellum Black arts journalists to the breakthroughs of Harlem Renaissance heavyweights (Zora Neale Hurston, Langston Hughes and others), from the jazz experimentalism of Ralph Ellison and Albert Murray to the revolutionary criticism of Amiri Baraka, Lorraine Hansberry, James Baldwin, Phyl Garland and others, this class explores the intellectual work of pioneering writers who produced radical knowledge about Black culture. Its second half turns to the late twentieth and twenty-first century criticism of legendary arts journalists, scholars and critics: Toni Morrison, Thulani Davis, Margo Jefferson, Hilton Als, Greg Tate, Farah J. Griffin, Joan Morgan, Danyel Smith, Wesley Morris, Hanif Abdurraqib, and others. Emphasis will be placed on music, literary, film, and theater/performance arts writing. Prerequisite: one or more AFAM courses. HU RP

* **AMST 245a / ENGL 246a / PLSC 247a, The Media and Democracy** Joanne Lipman
In an era of "fake news," when trust in mainstream media is declining, social platforms are enabling the spread of misinformation, and new technologies are transforming the way we consume news, how do journalists hold power to account? What is the media's role in promoting and protecting democracy? Students explore topics including objectivity versus advocacy and hate speech versus First Amendment speech protections. Case studies will span from 19th century yellow journalism to the #MeToo and #BlackLivesMatter movements, to the Jan. 6 Capitol attack and the advent of AI journalism. SO

AMST 250a / ER&M 251 / FILM 250a / GLOBL 249a, Introduction to Critical Data Studies Staff

"Big data" has become a buzzword these days – but what is data? This course introduces the study of data and data technologies and techniques through a critical, anti-colonial lens with profound attention to the power dynamics that constitute what is today called "data." From the seemingly opaque play of algorithms to artificial intelligence and surveillance systems, to digital media and the culture industries, various systems rely on the storage, transaction, classification, and exploitation of datasets. Data is, in short, both a medium that relies on and reconfigures power. This class discusses methods for the study of data technologies and techniques from multiple interdisciplinary humanities and social science perspectives. Through academic scholarship as well as art and data visualizations, students interrogate: How is data constituted through its entanglements with power? What is the relationship between data and social and

material inequality? What methods can we use to study the making of data? How can we envision decolonial data technologies and techniques? HU, SO o Course cr

* **AMST 258a / ER&M 258a / EVST 258a, Wilderness in the North American**

Imagination: Landscapes of the US Nuclear-Industrial Complex Charlotte Hecht

Since the mid-twentieth century, the drive for nuclear power—in the form of weapons and energy—has irreversibly shaped the landscapes of the North American continent, and the world. The activities of the nuclear fuel cycle (uranium mining and milling, weapons testing and production, and radioactive waste dumping) have reached every state in the country, often in devastating and uneven ways. Today, debates about nuclear weapons and the benefits of nuclear power are at the forefront of contemporary discourse. This course contextualizes these impacts and debates in the long history of post-war industrialization and militarization, a history that begins with 19th century settler-colonial conceptions of “wilderness.” Throughout the course, we investigate how cultural imaginaries of wilderness (and ideas about nature, landscape, space, and environment) are deeply related to the uneven geographies of the nuclear industrial complex, and the intersections of US imperialism, militarism, extractive capitalism, and environmental racism. Alongside this, we consider how artists, activists, and scholars are working to theorize, reframe, and reimagine the legacies of the nuclear industry.

HU

* **AMST 263a / AFAM 261a / EDST 263a, Place, Race, and Memory in Schools** Errol Saunders

In the wake of the Black Lives Matter movement and widespread, multiracial protests calling for racial justice across the United States, there is a renewed interest in the roles that schools play in perpetuating racial disparities in American society and the opportunities that education writ large might provide for remedying them. As *places*, schools both shape and are profoundly shaped by the built environment and the everyday experiences of the people that interact with them. Teachers, administrators, students, and parents are impacted by the racialized memories to explain the past, justify the present, and to move them to action for the future. These individual and collective memories of who and where they are, and the traumas, successes, failures, and accomplishments that they have with regard to school and education are essential to understanding how schools and school reforms work. Grounded in four different geographies, this course examines how the interrelationships of place, race, and memory are implicated in reforms of preK-12 schools in the United States. The course uses an interdisciplinary approach to study these phenomena, borrowing from commensurate frameworks in sociology, anthropology, political science, and memory studies with the goal of examining multiple angles and perspectives on a given issue. EDST 110 recommended. SO

AMST 272a / ER&M 282a / HIST 183a / WGSS 272a, Asian American History, 1800 to the Present Staff

An introduction to the history of East, South, and Southeast Asian migrations and settlement to the United States from the late eighteenth century to the present. Major themes include labor migration, community formation, U.S. imperialism, legal exclusion, racial segregation, gender and sexuality, cultural representations, and political resistance. HU o Course cr

* **AMST 305b / EP&E 247b / ER&M 330b / FILM 298b / SAST 262b, Digital War**

Madiha Tahir

From drones and autonomous robots to algorithmic warfare, virtual war gaming, and data mining, digital war has become a key pressing issue of our times and an emerging field of study. This course provides a critical overview of digital war, understood as the relationship between war and digital technologies. Modern warfare has been shaped by digital technologies, but the latter have also been conditioned through modern conflict: DARPA (the research arm of the US Department of Defense), for instance, has innovated aspects of everything from GPS, to stealth technology, personal computing, and the Internet. Shifting beyond a sole focus on technology and its makers, this class situates the historical antecedents and present of digital war within colonialism and imperialism. We will investigate the entanglements between technology, empire, and war, and examine how digital war – also sometimes understood as virtual or remote war – has both shaped the lives of the targeted and been conditioned by imperial ventures. We will consider visual media, fiction, art, and other works alongside scholarly texts to develop a multidisciplinary perspective on the past, present, and future of digital war.

none HU, SO

* **AMST 307b / ER&M 298b / HIST 117b / LITR 375b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language.

n/a WR, HU

* **AMST 308a / ENGL 335a / HUMS 275a, Literatures of the Plague** James Berger

In a new era of pandemic, we have seen how widespread medical crisis has profound effects on individual life and consciousness, and on political and economic institutions and practices. Our material and psychic supply chains grow tenuous. All of life changes even as we try to preserve what we deem most valuable. We must rethink what we consider to be “essential.” Yet this is far from being a new condition. Infectious disease has been part of the human social world probably since the beginnings of urban life. The Bible describes plagues sent by God as punishment. The earliest historical depiction was by Thucydides shortly after the plague in Athens in 430 BCE. At each occasion, people have tried to witness and to understand these “visitations,” as Daniel Defoe called them. The Plague is always a medical, political, economic and an interpretive crisis. It is also a moral crisis, as people must not only try to understand but also determine how to act. This course studies accounts of pandemics, from Thucydides in Athens up to our ongoing Coronavirus outbreaks. We trace the histories of understanding that accompanied pandemics: religious, scientific, philosophical,

ethical, literary. It seems to be the case that these vast, horrifying penetrations of death into the fabric of life have inspired some of our fragile and resilient species' most strange and profound meditations.

HU

* **AMST 309b / AFAM 259b / EDST 255b, Education and Empire** Talya Zemach-Bersin

This course offers an introduction to the transnational history of education in relation to the historical development of the U.S. empire both at home and abroad. By bringing together topics often approached separately—immigration, education, race, colonialism, and the history of U.S. empire—we interrogate the ways that education has been mobilized to deploy power: controlling knowledge, categorizing and policing differences, administering unequal paths to citizenship/belonging, forcing assimilation, promoting socio-economic divides, and asserting discipline and control. EDST 110 recommended. HU

* **AMST 319a / ENGL 327a, The Modernist Novel in the 1920s** Joe Cleary

Many of the classics of modernist fiction were published between 1920 and 1930. These novels did not come into the world as “modernist”; that term was later conferred on narrative experiments often considered bizarre at the time. As writers, the “modernists” did not conform to pre-existing social conceptions of “the writer” nor work with established systems of narrative genres; rather, they tried to remake the novel as form and bend it to new purposes. This course invites students to consider diverse morphologies of the Anglophone modernist novel in this decade and to reflect on its consequences for later developments in twentieth-century fiction. The seminar encourages careful analyses of individual texts but engages also with literary markets, patronage systems, changing world literary systems, the rise of cinema and mass and consumer cultures, and later Cold War constructions of the ideology of modernism.

WR, HU

* **AMST 326b / AFAM 349b / HIST 115Jb / WGSS 388b, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

* **AMST 328a / ER&M 357a / HIST 112a / HUMS 418a, "None Dare Call It Conspiracy:" Paranoia and Conspiracy Theories in 20th and 21st C. America**
Staff

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John

Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU

* **AMST 330b / ENGL 236b, Dystopic and Utopian Fictions** James Berger
Attempts since the late nineteenth century to imagine, in literature, cinema, and social theory, a world different from the existing world. The merging of political critique with desire and anxiety; the nature and effects of social power; forms of authority, submission, and resistance. HU

* **AMST 336a / WGSS 335a, LGBTQ Life Spans** Terrell Herring
Interdisciplinary survey of LGBTQ life spans in the United States concentrating primarily on later life. Special attention paid to topics such as disability, aging, and ageism; queer and trans creative aging; longevity and life expectancy during the AIDS epidemic; intergenerational intimacy; age and activism; critiques of optimal aging; and the development of LGBTQ senior centers and affordable senior housing. We explore these topics across multiple contemporary genres: documentary film (*The Joneses*), graphic memoir (Alison Bechdel's *Fun Home*), poetry (Essex Hemphill's "Vital Signs"), fabulation (Saidiya Hartman's *Wayward Lives, Beautiful Experiments*), and oral history. We also review archival documents of later LGBTQ lives – ordinary and iconic – held at the Beinecke Rare Book and Manuscript Library as well as the Lesbian Herstory Archives. HU

* **AMST 345a / ER&M 409a / WGSS 408a, Latinx Ethnography** Ana Ramos-Zayas
Consideration of ethnography within the genealogy and intellectual traditions of Latinx Studies. Topics include: questions of knowledge production and epistemological traditions in Latin America and U.S. Latino communities; conceptions of migration, transnationalism, and space; perspectives on "(il)legality" and criminalization; labor, wealth, and class identities; contextual understandings of gender and sexuality; theorizations of affect and intimate lives; and the politics of race and inequality under white liberalism and conservatism in the United States. SO

* **AMST 346a / ENGL 235a / HUMS 252a, Poetry and Objects** Karin Roffman
This course on 20th and 21st century poetry studies the non-symbolic use of familiar objects in poems. We meet alternating weeks in the Beinecke library archives and the Yale Art Gallery objects study classroom to discover literary, material, and biographical histories of poems and objects. Additionally, there are scheduled readings and discussions with contemporary poets. Assignments include both analytical essays and the creation of online exhibitions. WR, HU

* **AMST 350a / ER&M 319a / SAST 475a / THST 350a, Drama in Diaspora: South Asian American Theater and Performance** Shilarna Stokes
South Asian Americans have appeared on U.S. stages since the late nineteenth century, yet only in the last quarter century have plays and performances by South Asian Americans begun to dismantle dominant cultural representations of South Asian and South Asian American communities and to imagine new ways of belonging. This seminar introduces you to contemporary works of performance (plays, stand-up sets, multimedia events) written and created by U.S.-based artists of South Asian descent as well as artists of the South Asian diaspora whose works have had an impact on U.S. audiences. With awareness that the South Asian American diaspora comprises multiple,

contested, and contingent identities, we investigate how artists have worked to manifest complex representations of South Asian Americans onstage, challenge institutional and professional norms, and navigate the perils and pleasures of becoming visible. No prior experience with or study of theater/performance required. Students in all years and majors welcome. HU

*** AMST 353b / HIST 196Jb, 21st-Century US History: The First Decade** Joanne Meyerowitz

Students conduct collaborative primary source research on the first ten years of the 21st century. Topics include September 11th, the wars in Iraq and Afghanistan, Hurricane Katrina, the financial crisis of 2008, the election of Barack Obama, and battles over domestic surveillance, immigration, policing, gun control, same-sex marriage, and reproductive rights. WR, HU

*** AMST 360a / ANTH 371a, Inequality in the Anthropocene: Thinking the Unthinkable** Kathryn Dudley and Kate McNally

This course examines relationships between social inequality and anthropogenic climate change through an interdisciplinary ethnographic lens. Drawing on visual, sonic, and literary forms, we explore diverse modes of inquiry that strive to give analytical form and feeling to the unthinkable enormity of the geological epoch we're in. Final projects involve creative, artistic, multimedia field research. SO

*** AMST 361a / ER&M 322a, Comparative Colonialisms** Lisa Lowe

In this interdisciplinary seminar, students examine several historical and ongoing modes of colonialism—settler colonialism, slavery, and overseas empire, as well as their various contestations—approaching the study through readings in history, anthropology, political economy, literature, arts, and other materials. We discuss questions such as: In what ways are settler colonialism, slavery, and empire independent, and in what ways do they articulate with one another? How have colonialisms been integral to the emergence of the modern U.S. nation-state and economy? How does one read the national archive and engage the epistemology of evidence? What are the roles of cultural practices, narrative, and visual arts in countering colonial power? HU, SO

AMST 364b / EVST 366b / FILM 423b, Documentary and the Environment Charles Musser

Survey of documentaries about environmental issues, with a focus on *Darwin's Nightmare* (2004), *An Inconvenient Truth* (2006), *Food, Inc.* (2009), *GasLand* (2010), and related films. Brief historical overview, from early films such as *The River* (1937) to the proliferation of environmental film festivals. HU RP

*** AMST 365b / EP&E 399b / ER&M 295b / FILM 268b, Platforms and Cultural Production** Julian Posada

Platforms—digital infrastructures that serve as intermediaries between end-users and complementors—have emerged in various cultural and economic settings, from social media (Instagram), and video streaming (YouTube), to digital labor (Uber), and e-commerce (Amazon). This seminar provides a multidisciplinary lens to study platforms as hybrids of firms and multi-sided markets with unique history, governance, and infrastructures. The thematic sessions of this course discuss how platforms have transformed cultural production and connectivity, labor, creativity, and democracy by focusing on comparative cases from the United States and abroad. The seminar

provides a space for broader discussions on contemporary capitalism and cultural production around topics such as inequality, surveillance, decentralization, and ethics. Students are encouraged to bring examples and case studies from their personal experiences. Students previously enrolled in AMST 268 may not enroll in this course.

HU, SO

*** AMST 368a / ER&M 224a, Marxism and Social Movements in the Nineteenth Century** Michael Denning

The history and theory of the socialist and Marxist traditions from their beginnings in the early nineteenth century to the world upheavals of 1917–19. Relations to labor, feminist, abolitionist, and anticolonial movements.

*** AMST 382b / WGSS 372b, Theory and Politics of Sexual Consent** Joseph Fischel

Political, legal, and feminist theory and critiques of the concept of sexual consent. Topics such as sex work, nonnormative sex, and sex across age differences explored through film, autobiography, literature, queer commentary, and legal theory. U.S. and Connecticut legal cases regarding sexual violence and assault. SO RP

*** AMST 398a / ER&M 308a / HIST 158, American Indian Law and Policy** Ned Blackhawk

Survey of the origins, history, and legacies of federal Indian law and policy during two hundred years of United States history. The evolution of U.S. constitutional law and political achievements of American Indian communities over the past four decades.

WR, HU

*** AMST 406b / ENGL 326b, The Spectacle of Disability** James Berger

Examination of how people with disabilities are represented in U.S. literature and culture. Ways in which these representations, along with the material realities of disabled people, frame society's understanding of disability; the consequences of such formulations. Various media, including fiction, nonfiction, film, television, and memoirs, viewed through a wide range of analytical lenses. WR, HU RP

*** AMST 422a / ER&M 435a / HIST 151Ja, Writing Tribal Histories** Ned Blackhawk

Historical overview of American Indian tribal communities, particularly since the creation of the United States. Challenges of working with oral histories, government documents, and missionary records. WR, HU

*** AMST 430a / ANTH 430a / ER&M 432a / HIST 123a, Muslims in the United States** Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America's story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and

communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

* **AMST 438a / AFAM 352a / ER&M 291a / LITR 295a / WGSS 343a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

* **AMST 439a / ER&M 439a, Fruits of Empire** Gary Okihiro

Readings, discussions, and research on imperialism and "green gold" and their consequences for the imperial powers and their colonies and neo-colonies. Spatially conceived as a world-system that enmeshes the planet and as earth's latitudes that divide the temperate from the tropical zones, imperialism as discourse and material relations is this seminar's focus together with its implantations—an empire of plants. Vast plantations of sugar, cotton, tea, coffee, bananas, and pineapples occupy land cultivated by native and migrant workers, and their fruits move from the tropical to the temperate zones, impoverishing the periphery while profiting the core. Fruits of Empire, thus, implicates power and the social formation of race, gender, sexuality, class, and nation. HU, SO

* **AMST 443b / AFAM 426b / ENGL 381b, Toni Morrison & the Matter of Black Life** Daphne Brooks

This seminar examines key texts in the Toni Morrison canon that resonate as literary masterworks, innovative in narrative and aesthetic structure as well as content, and also as historical studies, expansive and probing in their interrogations of past struggles and future possibilities for African American communities and the American body politic more broadly. We consider how her novels explore the ongoing disasters that were and are settler colonialism, the Middle Passage and the Atlantic slave trade, the systemic violence of Jim Crow segregation, the violence of patriarchy, the traumas of war and American empire, and the insidious presence of misogyny in the everyday lives of her characters. But, we also look closely at the richness of love and intimacy, the radical roots of self-fashioning, and the insurgent potentiality of mobility and aesthetic creativity coursing through the lives of her protagonists who cut a fugitive path out of slavery, ride the waves of Reconstruction, the Great Migration, Civil Rights era hope and organizing, and post-Soul searching. We read key scholarship in direct conversation with Morrison's oeuvre, and we examine her robust and demanding critical essays on American literature, on contemporary events, and on the topic of writing. HU RP

* **AMST 449a / FILM 447a / HIST 413a, The Historical Documentary** Charles Musser

This course looks at the historical documentary as a method for carrying out historical work in the public humanities. It investigates the evolving discourse and resonances within such topics as the Vietnam War, the Holocaust and African American history.

It is concerned with their relationship of documentary to traditional scholarly written histories as well as the history of the genre and what is often called the “archival turn.”
WR, HU

* **AMST 452a / ER&M 452a, Mobility, Race, and U.S. Settler Colonialism** Laura Barraclough

This research seminar explores the significance of movement in the making of settler colonial nation-states, as well as contemporary public history projects that interpret those histories of mobility. To do so, it brings together the fields of settler colonial studies, critical Indigenous studies, ethnic studies, public history, and mobility studies. After acquainting ourselves with key debates within each of these fields, we examine case studies from various regions of the settler United States and diverse Indigenous nations. Our goal is to deepen awareness of the complex ways that movements—voluntary and forced, and by settlers, Natives, migrants, and people of color—are reproduced and remembered (or not) in public memory, and how these memories reproduce or destabilize settler colonialism’s social and cultural structures. This course is best suited to students who have initial ideas about a potential research topic and are exploring related ideas for their senior essay. HU

* **AMST 459b / ANTH 465b, Multispecies Worlds** Kathryn Dudley

This seminar explores the relational and material worlds that humans create in concert with other-than-human species. Through an interdisciplinary analysis of the problematic subject of anthropology—Anthropos—we seek to pose new questions about the fate of life worlds in the present epoch of anthropogenic climate change. Our readings track circuits of knowledge from anthropology and philosophy to geological history, literary criticism, and environmental studies as we come to terms with the loss of biodiversity, impending wildlife extinctions, and political-economic havoc wrought by global warming associated with the Anthropocene. A persistent provocation guides our inquiry: What multispecies worldings become possible to recognize and cultivate when we dare to decenter the human in our politics, passions, and aspirations for life on a shared planet? SO

* **AMST 461a / AFAM 239a / EDST 209a / ER&M 292a / WGSS 202a, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

* **AMST 462b / ER&M 462b / WGSS 463b, The Study of Privilege in the Americas** Ana Ramos-Zayas

Examination of inequality, not only through experiences of the poor and marginal, but also through institutions, beliefs, social norms, and everyday practices of the privileged. Topics include: critical examination of key concepts like “studying up,” “elite,” and “privilege,” as well as variations in forms of capital; institutional sites of privilege (elite prep schools, Wall Street); living spaces and social networks (gated communities, private clubs); privilege in intersectional contexts (privilege and race,

class, and gender); and everyday practices of intimacy and affect that characterize, solidify, and promote privilege. SO

* **AMST 463a and AMST 464b / EVST 463a and EVST 464b / FILM 455a and FILM 456b / THST 457a and THST 458b, Documentary Film Workshop** Charles Musser

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

* **AMST 467b / HSHM 469b / MCDB 469b, Biology of Humans through History, Science, and Society** Valerie Horsley

This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

* **AMST 470a / AFAM 457a / AFST 457a / ER&M 467a / FREN 481a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the "beur" author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements.

HU

* **AMST 471a and AMST 472b, Individual Reading and Research for Juniors and Seniors** Staff

Special projects intended to enable the student to cover material not otherwise offered by the program. The course may be used for research or for directed reading, but in either case a term paper or its equivalent is required as evidence of work done. It is expected that the student will meet regularly with the faculty adviser. To apply for admission, a student should submit a prospectus signed by the faculty adviser to the director of undergraduate studies.

* **AMST 487b / PLSC 275b, The Rise of “Presidentialism” in the United States**

Stephen Skowronek

This course is about the rise and makeshift character of “presidentialism” in the United States. It will examine different sources of power that have, singly and in combination, put the presidency at the center of government and politics. These include: 1) popular power: in elections, public opinion, parties, and social movements; 2) institutional power: in control of the executive branch, military command, and war making. Readings will delve into cases in which each of these sources of power figured prominently. In every particular, the seminar will consider the strains that this power has put on the constitutional frame. For advanced undergraduates, or by permission
SO

* **AMST 491a or b, Senior Project** Staff

Independent research and proseminar on a one-term senior project. For requirements see under “Senior requirement” in the American Studies program description.

* **AMST 493a and AMST 494b, Senior Project for the Intensive Major** Staff

Independent research and proseminar on a two-term senior project. For requirements see under “Senior requirement” in the American Studies program description.

Ancient Greek (GREK)

GREK 110a, Beginning Greek: The Elements of Greek Grammar Staff

Introduction to ancient Greek. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for GREK 120. No prior knowledge of Greek assumed. L1 1½ Course cr

GREK 131a, Greek Prose: An Introduction Staff

Close reading of selections from classical Greek prose with review of grammar. Counts as L4 if taken after GREK 141 or equivalent. L3

* **GREK 443a, Homer's *Iliad*** Egbert Bakker

Reading of selected books of the *Iliad*, with attention to Homeric language and style, the Homeric view of heroes and gods, and the reception of Homer in antiquity. L5, HU

* **GREK 475a, Lucian's Fiction and Comic Dialogues** Staff

Reading of selections from Lucian of Samosata's comic dialogues and fictional writings. Focus on translation and interpretation of the text in relation to others in the rhetorical tradition. Attention to the work's intellectual, cultural, and historical contexts in the Second Sophistic. A bridge course between L4 and other L5 courses. L5

GREK 743a, Homer's *Iliad* Egbert Bakker

Reading of selected books of the *Iliad*, with attention to Homeric language and style, the Homeric view of heroes and gods, and the reception of Homer in antiquity.

Anthropology (ANTH)

* **ANTH 061b, Understanding Human Origins** Jessica Thompson

This course deals with scientific questions of what we know about human origins and human evolution. It presents evidence from evolutionary and life history theory, geochronology, paleontology, paleoenvironmental reconstruction, phylogenetic analysis, genetics, archaeology, and functional morphology. It also tackles the issue of how we know what we think we know of our own ancestry over the past 6 million

years. In other words, what constitutes evidence for human evolution and how is that evidence interpreted? Students are introduced to basic milestones in human evolution and learn how they have shaped us into the species we are today, using diverse lines of evidence from evolutionary and life history theory, geochronology, paleontology, paleoenvironmental reconstruction, phylogenetic analysis, genetics, archaeology, and functional morphology. We critically examine key debates that have taken place over the last century of exploration in human evolutionary research, learning how unconventional thinking and spectacular discoveries have shaped current knowledge of our origins. Students meet strange and fascinating historical characters, and then meet our fossil ancestors via the cast collection. Students also receive hands-on and interactive learning about the morphology, life history patterns, locomotion, social behavior, and diet of our nearest fossil relatives; observe living primates to assess what they can tell us about our own deep past; dive into data collection by locating real archaeological and fossil sites; and learn how molecular techniques such as ancient DNA have transformed understanding of the origins of our own species. By formally debating controversial issues with classmates, students learn what a surprising amount of information scientists can discern from fragmentary fossils, and are brought up to date with the most current discoveries in human evolution. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SO

*** ANTH 075a, Observing the World** Jane Lynch

How do we learn about the worlds of others? How do we represent our own? This seminar focuses on the poetics and politics of social observation and engagement. We examine the qualitative research methods (e.g., asking, listening, and observing) used by scholars—as well as other professionals, including journalists and government officials—to produce texts (e.g., academic books, magazine articles, and case files) based on empirical observation. Thinking critically about observation and observational writing as modes of knowledge production, we discuss and develop tools of reading, thinking, and writing to address questions of injustice and power. Texts are juxtaposed with documentary film, photography, and other forms of artistic and visual representation, to help bring both the conventions and possibilities of observational writing more clearly into view. Students complete a range of writing projects, including: descriptive and analytical “field notes,” interviews, and essays based on their own observations of the world(s) around them. In addition to developing their writing skills, students also learn basic concepts in the practice and politics of social research and analysis. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU, SO

ANTH 110b, An Introduction to Cultural Anthropology Erik Harms

Anthropological study of cosmology, tacit knowledge, and ways of knowing the world in specific social settings. Ways in which sociocultural specificity helps to explain human solutions to problems of cooperation and conflict, production and reproduction, expression, and belief. Introduction to anthropological ways of understanding cultural difference in approaches to sickness and healing, gender and sexuality, economics, religion, and communication. SO o Course cr

*** ANTH 112b, Agent, Person, Subject, Self** Paul Kockelman

Introduction to the interconnections between language and personality development and to the social construction of person and self. Focus on the capacities of agency, subjectivity, selfhood, and personhood as analyzed in classic works from anthropology,

psychology, and philosophy. Ways in which these seemingly human-specific and individual-centric capacities are essential for understanding social processes. SO

ANTH 116a, Introduction to Biological Anthropology Jessica Thompson

Introduction to human and primate evolution, primate behavior, and human biology. Topics include a review of principles of evolutionary biology and basic molecular and population genetics; the behavior, ecology, and evolution of nonhuman primates; the fossil and archaeological record for human evolution; the origin of modern humans; biological variation in living humans; and the evolution of human behavior. SC, SO
o Course cr

ANTH 172b / ARCG 172b, Great Hoaxes and Fantasies in Archaeology William Honeychurch

Examination of selected archaeological hoaxes, cult theories, and fantasies; demonstration of how archaeology can be manipulated to authenticate nationalistic ideologies, religious causes, and modern stereotypes. Examples of hoaxes and fantasies include the lost continent of Atlantis, Piltdown man, ancient giants roaming the earth, and alien encounters. Evaluation of how, as a social science, archaeology is capable of rejecting such interpretations about the past. SO

ANTH 182b, Primate Behavior and Ecology David Watts

Survey of the ecological and behavioral diversity among nonhuman primates (lemurs, lorises, monkeys, and apes). Introduces students to the study of behavioral evolution and to variation in primate habitats and ecological adaptations, mating systems, and social behavior. Among the topics are links between ecology and social organization; cooperation and competition; the complexities of social life and adaptive benefits of sociality; and case studies such as baboons, gorillas, and chimpanzees. Relevance of studying nonhuman primates to understanding human behavior is a major theme. SO

ANTH 203b, Primate Conservation David Watts

A study of nonhuman primates threatened by deforestation, habitat disturbance, hunting, and other human activities; the future of primate habitats, especially tropical rainforests, as they are affected by local and global economic and political forces. Examination of issues in primate conservation, from the principles of conservation biology and rainforest ecology to the emergence of diseases such as AIDS and Ebola and the extraction of tropical resources by local people and by transnational corporations. SO

*** ANTH 204a, Molecular Anthropology** Serena Tucci

This course is a perfect introduction for anyone interested in understanding how genetics can help us answer fundamental questions in human evolution and population history. The course studies the basic principles of population genetics, molecular evolution, and genetic data analysis. Topics include DNA and human origins, human migrations, genetic adaptation, ancient DNA, and Neandertals. By the end of this course, students learn about the processes that generate and shape genetic variation, as well as the molecular and statistical tools used to reconstruct human evolutionary history. SC

*** ANTH 213a / EAST 313a, Contemporary Japan and the Ghosts of Modernity**

Yukiko Koga

This course introduces students to contemporary Japan, examining how its defeat in the Second World War and loss of empire in 1945 continue to shape Japanese culture

and society. Looking especially at the sphere of cultural production, it focuses on the question of what it means to be modern as expressed through the tension between resurgent neonationalism and the aspiration to internationalize. The course charts how the legacy of Japan's imperial failure plays a significant role in its search for renewal and identity since 1945. How, it asks, does the experience of catastrophic failure – and failure to account for that failure – play into continued aspirations for modernity today? How does Japanese society wrestle with modernity's two faces: its promise for progress and its history of catastrophic violence? The course follows the trajectory of Japan's postwar nation-state development after the dissolution of empire, from its resurrection out of the ashes after defeat, to its identity as a US ally and economic superpower during the Cold War, to decades of recession since the 1990s and the search for new relations with its neighbors and new reckonings with its own imperial violence and postwar inactions against the background of rising neonationalism. HU, SO

ANTH 229a / HSHM 254, The Anthropology of Outer Space Lisa Messeri

Examination of the extraterrestrial through consideration of ideas in anthropology and aligned disciplines. Students discuss, write, and think about outer space as anthropologists and find the value of exploring this topic scientifically, socially, and philosophically. Previously ANTH 399. SO

ANTH 230a / WGSS 230a, Evolutionary Biology of Women's Reproductive Lives

Claudia Valeggia

Evolutionary and biosocial perspectives on female reproductive lives. Physiological, ecological, and social aspects of women's development from puberty through menopause and aging, with special attention to reproductive processes such as pregnancy, birth, and lactation. Variation in female life histories in a variety of cultural and ecological settings. Examples from both traditional and modern societies. SC
o Course cr

*** ANTH 235a / AFST 277a / ER&M 277a, Introduction to Critical Border Studies**

Leslie Gross-Wyrtzen

This course serves as an introduction into the major themes and approaches to the study of border enforcement and the management of human mobility. We draw upon a diverse range of scholarship across the social sciences as well as history, architecture, and philosophy to better understand how we find ourselves in this present “age of walls” (Tim Marshall 2019). In addition, we take a comparative approach to the study of borders – examining specific contemporary and historical cases across the world in order to gain a comprehensive view of what borders are and how their meaning and function has changed over time. And because there is “critical” in the title, we explicitly evaluate the political consequences of borders, examine the sorts of resistances mobilized against them, and ask what alternative social and political worlds might be possible. SO

*** ANTH 236a, Fat: Biology, Evolution, and Society** Claudia Valeggia and Katherine

Daiy

The goal of this course is to provide an interdisciplinary approach to learning about obesity as a biological and social phenomenon. We use biology as a scaffolding to understand obesity, yet also discuss the social, cultural, and psychological elements that shape our relationship with food and body size. The coursework focuses on three perspectives – the biological pathways over the lifetime that lead to obesity, the evolutionary origin of obesity, and the cross-cultural and societal meanings of obesity.

Briefly, topics include adipose tissue as a regulatory and endocrine organ, human body composition variation in differing ecologies, the developmental origins of obesity, efficacy of obesity interventions and political economies' influence on obesity. This class has a "leminar" format, in which lectures are mixed with active, student-centered, in-class discussions. SO

ANTH 242b, Human Evolutionary Biology and Life History Richard Bribiescas

The range of human physiological adaptability across environments and ecologies. Effects of energetic constraints on growth, reproduction, and behavior within the context of evolution and life history theory, with special emphasis on traditional non-Western societies. SC, SO o Course cr

ANTH 244a, Modern Southeast Asia Erik Harms

This course offers a comprehensive introduction to the extraordinary diversity of Southeast Asian peoples, cultures, and political economy. Broadly focused on the nation-states that have emerged since the end of World War II (Brunei, Burma [Myanmar], Cambodia, Indonesia, East Timor, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam), the course explores the benefits and limits to a regional perspective. Crossing both national and disciplinary boundaries, the course introduces students to key elements of Southeast Asian geography, history, language and literature, belief systems, marriage and family, music, art, agriculture, industrialization and urbanization, politics and government, ecological challenges, and economic change. In addition to providing a broad and comparative survey of "traditional" Southeast Asia, the course places special emphasis on the intellectual and practical challenges associated with modernization and development, highlighting the ways different Southeast Asian nations contend with the forces of globalization. The principle readings include key works from a multidisciplinary range of fields covering anthropology, art, economics, geography, history, literature, music, and political science. No prior knowledge of Southeast Asia is expected. SO o Course cr

* **ANTH 255a / ARCG 255a / LAST 255a, Inca Culture and Society** Richard Burger

The history and organization of the Inca empire and its impact on the nations and cultures it conquered. The role of archaeology in understanding the transformation of Andean lifeways; the interplay between ethnohistoric and archaeological approaches to the subject. SO

ANTH 280a, Evolution of Primate Intelligence Staff

Discussion of the extent and evolutionary origins of cognitive abilities in primates (prosimians, monkeys, apes, and humans). Topics include the role of ecological and social factors as evolutionary forces; "ape language" studies; and whether any nonhuman primates possess a "theory of mind." SO o Course cr

ANTH 294b / ARCG 294b, The Ancient Maya Oswaldo Chinchilla Mazariegos

Introduction to the archaeological study of ancient Maya civilization in southern Mexico and northern Central America. Maya origins and modes of adaptation to a tropical forest environment; political history of the Classic Maya and competing theories about their collapse; overviews of Maya art, calendar, and writing. SO

* **ANTH 301a / ARCG 301a, Foundations of Modern Archaeology** Richard Burger

Discussion of how method, theory, and social policy have influenced the development of archaeology as a set of methods, an academic discipline, and a political tool.

Background in the basics of archaeology equivalent to one introductory course is assumed. SO o Course cr

* **ANTH 303b, Field Methods in Cultural Anthropology** Jane Lynch

The fundamentals of cultural anthropology methods. The foundations of fieldwork approaches, including methods, theories, and the problem of objectivity. WR, SO

* **ANTH 307b, Reparation, Repair, Reconciliation: Reckoning with Slavery and Colonialism in Global Perspective** Yukiko Koga

Imperial reckoning for slavery, imperialism, and colonialism has gained new momentum in recent years, from official apologies for colonial violence to reparations lawsuits filed in Asia, Europe, and the US for slavery, genocide, and massacres, to demands for the return of bodily remains and cultural artifacts from established cultural institutions. This seminar explores how these new attempts for belated imperial reckoning are reshaping relations between former empires and their ex-colonies. It approaches imperial reckoning as a site for redressing not only the original violence but also the transitional *injustice* incurred in the process of the unmaking of empire, which calls for post-imperial reckoning. Drawing on examples from recent cases, this course explores what it means to belatedly reckon with imperial violence today. What does it mean to reckon with imperial violence through legal means, decades after the dissolution of empires? What is the role of law in belated redress? How is historical responsibility articulated and by whom? Who is responsible for what, then and now? What are the stakes in reckoning with distant, yet still alive, pasts? Why and how does it matter today for those of us who have no direct experience of imperial violence? This course approaches these questions through an anthropological exploration of concepts such as debt, gift, moral economy, structural violence, complicity and implication, and abandonment. Instructor permission required. HU, SO

* **ANTH 309a, Language and Culture** Paul Kockelman

The relations between language, culture, and cognition. What meaning is and why it matters. Readings in recent and classic works by anthropologists, linguists, psychologists, and philosophers. SO o Course cr

* **ANTH 311a, Anthropological Theory and the Post Colonial Encounter** Jane Lynch

Key texts in the theoretical development of sociocultural anthropology. Theorists include Karl Marx, Max Weber, Emile Durkheim, Franz Boas, Zora Neale Hurston, Sidney Mintz, Bernard Cohn, Michel Foucault, Edward Said, Antonio Gramsci, Sherry Ortner, and Joan Scott. SO o Course cr

ANTH 316La / ARCG 316La, Introduction to Archaeological Laboratory Sciences

Ellery Frahm

Introduction to techniques of archaeological laboratory analysis, with quantitative data styles and statistics appropriate to each. Topics include dating of artifacts, sourcing of ancient materials, remote sensing, and microscopic and biochemical analysis. Specific techniques covered vary from year to year. SC

* **ANTH 321a / MMES 321a / SOCY 318a / WGSS 321a, Middle East Gender Studies**

Marcia Inhorn

The lives of women and men in the contemporary Middle East explored through a series of anthropological studies and documentary films. Competing discourses surrounding gender and politics, and the relation of such discourse to actual practices

of everyday life. Feminism, Islamism, activism, and human rights; fertility, family, marriage, and sexuality. SO

* **ANTH 322b / EVST 324b / SAST 306b, Environmental Justice in South Asia**

Kalyanakrishnan Sivaramakrishnan

Study of South Asia's nation building and economic development in the aftermath of war and decolonization in the 20th century. How it generated unprecedented stress on natural environments; increased social disparity; and exposure of the poor and minorities to environmental risks and loss of homes, livelihoods, and cultural resources. Discussion of the rise of environmental justice movements and policies in the region as the world comes to grips with living in the Anthropocene. . SO o Course cr

* **ANTH 324a / ANTH 824a / EAST 324a, Politics of Memory** Yukiko Koga

This course explores the role of memory as a social, cultural, and political force in contemporary society. How societies remember difficult pasts has become a contested site for negotiating the present. Through the lens of memory, we examine complex roles that our relationships to difficult pasts play in navigating issues we face today. This course explores this politics of memory that takes place in the realm of popular culture and public space. The class asks such questions as: How do you represent difficult and contested pasts? What does it mean to enable long-silenced victims' voices to be heard? What are the consequences of re-narrating the past by highlighting past injuries and trauma? Does memory work heal or open wounds of a society and a nation? Through examples drawn from the Holocaust, the atomic bombing in Hiroshima, the Vietnam War, genocide in Indonesia and massacres in Lebanon, to debates on confederacy statues, slavery, and lynching in the US, this course approaches these questions through an anthropological exploration of concepts such as memory, trauma, mourning, silence, voice, testimony, and victimhood. HU, SO

* **ANTH 336b / ARCG 336b / EPS 336b, Geoarchaeology** Ellery Frahm

A survey of the numerous ways in which theories, approaches, techniques, and data from the earth and environmental sciences are used to address archaeological research questions. A range of interfaces between archaeology and the geological sciences are considered. Topics include stratigraphy, geomorphology, site formation processes, climate reconstruction, site location, and dating techniques. Prior introductory coursework in archaeology or geology (or instructor permission) suggested. SC, SO

* **ANTH 342a / EAST 346a, Cultures and Markets in Asia** Helen Siu

Historical and contemporary movements of people, goods, and cultural meanings that have defined Asia as a region. Reexamination of state-centered conceptualizations of Asia and of established boundaries in regional studies. The intersections of transregional institutions and local societies and their effects on trading empires, religious traditions, colonial encounters, and cultural fusion. Finance flows that connect East Asia and the Indian Ocean to the Middle East and Africa. The cultures of capital and market in the neoliberal and postsocialist world. SO

* **ANTH 358b / SAST 304b, Corporations & Communities** Jane Lynch

Can communities redefine corporations? How do corporations shape everyday life? To whom are they responsible? This course examines the relationship between commerce, society, and culture through a diverse set of case studies that are rooted in both global and local histories. Students learn about Henry Ford's rubber plantations in the Amazon, family firms in Italy, how the East India Company shaped the

modern multinational, the first company town to be established and run by an Indian firm, transnational “stakeholder” arrangements to compensate injured garment workers in Bangladesh, and the rise of “corporate social responsibility” culture. The goal of this course is not to define the relationship between corporations and communities as singular or obvious, but rather, to draw out the variety of factors – economic, historical, social, and cultural – that shape commercial interactions, institutional cultures, and claims about market ethics and social responsibility. HU, SO

*** ANTH 362b, Unity and Diversity in Chinese Culture** Helen Siu

An exploration of the Chinese identity as it has been reworked over the centuries.

Major works in Chinese anthropology and their intellectual connections with general anthropology and historical studies. Topics include kinship and marriage, marketing systems, rituals and popular religion, ethnicity and state making, and the cultural nexus of power.

*** ANTH 367b, Technology and Culture** Lisa Messeri

This class examines how technology matters in our daily lives. How do technologies shape understandings of ourselves, the worlds we inhabit, and each other? How do the values and assumptions of engineers and innovators shape our behaviors? How do technologies change over time and between cultures. Students learn to think about technology and culture as co-constituted. We read and discuss texts from history and anthropology of science, as well as fictional explorations relevant to course topics. .

o Course cr

*** ANTH 371a / AMST 360a, Inequality in the Anthropocene: Thinking the Unthinkable** Kathryn Dudley and Kate McNally

This course examines relationships between social inequality and anthropogenic climate change through an interdisciplinary ethnographic lens. Drawing on visual, sonic, and literary forms, we explore diverse modes of inquiry that strive to give analytical form and feeling to the unthinkable enormity of the geological epoch we're in. Final projects involve creative, artistic, multimedia field research. SO

*** ANTH 372b / ARCG 372b, The Archaeology of Urbanism** Oswaldo Chinchilla Mazariegos

Archaeological studies of ancient cities and urbanism. Topics include the origin and growth of cities; the economic, social, and political implications of urban life; and archaeological methods and theories for the study of ancient urbanism. Case studies include ancient cities around the world. SO

*** ANTH 375b / ARCG 379b, Anthropology of Mobile Societies** William Honeychurch

The social and cultural significance of the ways that hunter-gatherers, pastoral nomads, maritime traders, and members of our own society traverse space. The impact of mobility and transport technologies on subsistence, trade, interaction, and warfare from the first horse riders of five thousand years ago to jet-propulsion tourists of today. SO

*** ANTH 376b / EVST 377b, Observing and Measuring Behavior, Part I: Study Design** Eduardo Fernandez-Duque

This is the first course in a spring-fall sequence. The course surveys theoretical issues and practical methods relevant to studying the behavior of animals and humans, primarily in the “wild.” Topics covered include formulation of research questions, hypotheses and predictions, study design, sampling methods for studying behavior,

genetics, endocrinology, ecology, climate. Students learn and practice various forms of behavioral and ecological sampling, as well as gain familiarity with some widely-used technologies that facilitate the study of behavior (e.g. radiotelemetry). Then, working around a specific research question, students design their own study. Those who choose can develop a study to be implemented during an NSF-funded Summer Program in Argentina (<https://www.owlmonkeyproject.com/open-calls>). Students who enrolled in ANTH 376 during spring 2021 when the summer program was cancelled due to the pandemic can apply to take part in the 2022 summer program in Argentina and may enroll in ANTH 377 during the fall 2022 term. Prerequisite: Some background (including high school) on evolutionary biology, animal behavior, biology recommended. Contact the Instructor if in doubt. SC, SO

* **ANTH 385a / ARCG 385a, Archaeological Ceramics** Anne Underhill

Archaeological methods for analyzing and interpreting ceramics, arguably the most common type of object found in ancient sites. Focus on what different aspects of ceramic vessels reveal about the people who made them and used them. SO

* **ANTH 393a / ER&M 352a, Writing Creative Ethnographies: Exploring Movement, Poetics, and Collaboration** Jill Tan

Students in this seminar on creative ethnographic writing and experimental research design explore and represent anthropological insight beyond academic argumentation – through movement, art, poetics, and collaborative writing. Course readings and media focus on migration, colonialisms, and anti-blackness, situating anthropology's disciplinary epistemologies, empirics, ethics in integral relation to an understanding its limits, collaborative potentialities, and multimodal methods. Students need not have a background in anthropology; they should however come with a curiosity about working with creative methods and ethnography – a set of practices to render and understand local forms of everyday life as imbricated with global forces. WR, HU, SO

* **ANTH 394a, Methods and Research in Molecular Anthropology I** Serena Tucci

The first part of a two-term practical introduction to molecular analysis of anthropological questions. Discussion of genetics and molecular evolution, particularly as they address issues in anthropology, combined with laboratory sessions on basic tools for genetic analysis and bioinformatics. Development of research projects to be carried out in ANTH 395. SC o Course cr

* **ANTH 395b, Methods and Research in Molecular Anthropology II** Serena Tucci

The second part of a two-term practical introduction to molecular analysis of anthropological questions. Design and execution of laboratory projects developed in ANTH 394. Research involves at least ten hours per week in the laboratory. Results are presented in a formal seminar at the end of the term. Prerequisite: ANTH 394. RP

* **ANTH 401a, Meaning and Materiality** Paul Kockelman

The interaction of meaning and materiality. Relations among significance, selection, sieving, and serendipity explored through classic work in biosemiosis, technocognition, and sociogenesis. Sources from sociocultural and linguistic anthropology, philosophy, and cognitive sciences such as psychology. SO

* **ANTH 404a / EVST 404a, Advanced Topics in Behavioral Ecology** Eduardo Fernandez-Duque

This seminar explores advanced topics in behavioral ecology while examining the mechanisms, function, reproductive consequences, and evolution of behavior. The

main goals of the course are to: (1) discuss the primary literature in behavioral ecology, (2) become familiar with current theory and approaches in behavioral ecology, (3) understand how to formulate hypotheses and evaluate predictions about animal behavior, (4) explore the links between behavior and related fields in ecology and evolution (e.g. ecology, conservation biology, genetics, physiology), (5) identify possible universities, research groups, and advisors for summer research or graduate studies. Students watch a mix of live and recorded talks by leading behavioral ecologists who present at the Frontiers in Social Evolution Seminar series, and they attend and participate in the hour-long discussions that follow the talk. The class meets to discuss the primary literature recommended by the presenter and to engage in small-group conversations with those who visit the course. Prerequisite: A Yale course on evolutionary biology (e.g. BIOL 104, ANTH 116, ANTH 376) or E&EB 242. Otherwise permission of instructor required. SC

* **ANTH 409a / ER&M 394a / EVST 422a / F&ES 422a / GLOBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove

Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities. WR, SO

* **ANTH 414b / EAST 417b, Hubs, Mobilities, and World Cities** Helen Siu

Analysis of urban life in historical and contemporary societies. Topics include capitalist and postmodern transformations; class, gender, ethnicity, and migration; and global landscapes of power and citizenship. . SO RP o Course cr

* **ANTH 415a, Culture, History, Power, and Representation** Helen Siu

This seminar critically explores how anthropologists use contemporary social theories to formulate the junctures of meaning, interest, and power. It thus aims to integrate symbolic, economic, and political perspectives on culture and social process. If culture refers to the understandings and meanings by which people live, then it constitutes the conventions of social life that are themselves produced in the flux of social life, invented by human activity. Theories of culture must therefore illuminate this problematic of agency and structure. They must show how social action can both reproduce and transform the structures of meaning, the conventions of social life. Even as such a position becomes orthodox in anthropology, it raises serious questions about the possibilities for ethnographic practice and theoretical analysis. How, for example, are such conventions generated and transformed where there are wide differentials of power and unequal access to resources? What becomes of our notions of humans as active agents of culture when the possibilities for maneuver and the margin of action for many are overwhelmed by the constraints of a few? How do elites – ritual elders, Brahmanic priests, manorial lords, factory-managers – secure compliance to a normative order? How are expressions of submission and resistance woven together in a fabric of cultural understandings? How does a theory of culture enhance our analyses of the reconstitution of political authority from traditional kingship to modern nation-state, the encapsulation of pre-capitalist modes of production, and the attempts to convert “primordial sentiments” to “civic loyalties”? How do transnational fluidities and diasporic connections make instruments of nation-states contingent? These questions are some of the questions we immediately face when probing the intersections of

culture, politics and representation, and they are the issues that lie behind this seminar. SO

* ANTH 417a / ARCG 417a, **Maya Hieroglyphic Writing** Oswaldo Chinchilla
Mazariegos

Introduction to the ancient Maya writing system. Contents of the extant corpus, including nametags, royal and ritual commemorations, dynastic and political subjects, and religious and augural subjects; principles and methods of decipherment; overview of the Maya calendar; comparison with related writing systems in Mesoamerica and elsewhere in the ancient world. SO

* ANTH 423b / ANTH 623b, **The Anthropology of Possible Worlds** Paul Kockelman
This course focuses on the nature of possible worlds: literary worlds (Narnia), ideological worlds (the world according to a particular political stance), psychological worlds (what someone remembers to be the case, wishes to be the case, or believes to be the case), environmental worlds (possible environmental futures), virtual worlds (the World of Warcraft), and – most of all – ethnographic works in which the actual and possible worlds of others are represented (the world according to the ancient Maya). We don't focus on the contents of such worlds per se, but rather on the range of resources people have for representing, regimenting, and residing in such worlds; and the roles such resources play in mediating social relations and cultural values. SO

* ANTH 430a / AMST 430a / ER&M 432a / HIST 123a, **Muslims in the United States**
Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America's story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

* ANTH 448a, **Medical Anthropology at the Intersections: Theory and Ethnography**
Marcia Inhorn

The field of medical anthropology boasts a rich theoretical and empirical tradition, in which critically acclaimed ethnographies have been written on topics ranging from local biologies to structural violence. Many scholars engage across the social science and humanities disciplines, as well as with medicine and public health, offering both critiques and applied interventions. This medical anthropology seminar showcases

the theoretical and ethnographic engagements of nearly a dozen leading medical anthropologists, with a focus on their canonical works and their intersections across disciplines. Prerequisite: A prior medical anthropology course or permission of instructor. SO o Course cr

*** ANTH 450a / ARCG 450a, Analysis of Lithic Technology** Oswaldo Chinchilla Mazariegos

Introduction to the analysis of chipped and ground stone tools, including instruction in manufacturing chipped stone tools from obsidian. Review of the development of stone tool technology from earliest tools to those of historical periods; relevance of this technology to subsistence, craft specialization, and trade. Discussion of the recording, analysis, and drawing of artifacts, and of related studies such as sourcing and use-wear analysis. SO

ANTH 464a or b / ARCG 464a or b / E&EB 464a or b, Human Osteology Eric Sargis
A lecture and laboratory course focusing on the characteristics of the human skeleton and its use in studies of functional morphology, paleodemography, and paleopathology. Laboratories familiarize students with skeletal parts; lectures focus on the nature of bone tissue, its biomechanical modification, sexing, aging, and interpretation of lesions. SC, SO o Course cr

*** ANTH 465b / AMST 459b, Multispecies Worlds** Kathryn Dudley

This seminar explores the relational and material worlds that humans create in concert with other-than-human species. Through an interdisciplinary analysis of the problematic subject of anthropology—Anthropos—we seek to pose new questions about the fate of life worlds in the present epoch of anthropogenic climate change. Our readings track circuits of knowledge from anthropology and philosophy to geological history, literary criticism, and environmental studies as we come to terms with the loss of biodiversity, impending wildlife extinctions, and political-economic havoc wrought by global warming associated with the Anthropocene. A persistent provocation guides our inquiry: What multispecies worldings become possible to recognize and cultivate when we dare to decenter the human in our politics, passions, and aspirations for life on a shared planet? SO

*** ANTH 468a / AFST 465a / HSHM 413a / URBN 400 / URBN 442a, Infrastructures of Empire: Control and (In)security in the Global South** Leslie Gross-Wyrtzen

This advanced seminar examines the role that infrastructure plays in producing uneven geographies of power historically and in the “colonial present” (Gregory 2006). After defining terms and exploring the ways that infrastructure has been conceptualized and studied, we analyze how different types of infrastructure (energy, roads, people, and so on) constitute the material and social world of empire. At the same time, infrastructure is not an uncontested arena: it often serves as a key site of political struggle or even enters the fray as an unruly actor itself, thus conditioning possibilities for anti-imperial and decolonial practice. The geographic focus of this course is the African continent, but we explore comparative cases in other regions of the majority and minority world. SO

*** ANTH 471a or b and ANTH 472a or b, Readings in Anthropology** Staff

For students who wish to investigate an area of anthropology not covered by regular departmental offerings. The project must terminate with at least a term paper or its equivalent. No student may take more than two terms for credit. To apply for

admission, a student should present a prospectus and bibliography to the director of undergraduate studies no later than the third week of the term. Written approval from the faculty member who will direct the student's reading and writing must accompany the prospectus.

*** ANTH 491a or b, The Senior Essay** Staff

Supervised investigation of some topic in depth. The course requirement is a long essay to be submitted as the student's senior essay. By the end of the third week of the term in which the essay is written, the student must present a prospectus and a preliminary bibliography to the director of undergraduate studies. Written approval from an Anthropology faculty adviser and an indication of a preferred second reader must accompany the prospectus.

*** ANTH 492b / ARCG 492b / NELC 321b, Imaging Ancient Worlds in Museum Collections** Agnete Lassen and Klaus Wagensohnner

What is Digitization of Cultural Heritage? What are its merits, challenges, and best practices? The course highlights the documentation and interpretation of archaeological artifacts, in particular artifacts from Western Asia. The primary goal of the course is the use of new technologies in computer graphics, including 3D imaging, to support current research in archaeology and anthropology. The course does put particular emphasis on the best practices of digitizing artifacts in collections. The prime study subjects are the artifacts housed in the Yale Babylonian Collection (<https://babylonian-collection.yale.edu>). For some background information on the Collection see here. Students engage directly with the artifacts while practicing the various imaging techniques. HU o Course cr

Applied Mathematics (AMTH)

AMTH 222a or b / MATH 222a or b, Linear Algebra with Applications Staff

Matrix representation of linear equations. Gauss elimination. Vector spaces. Linear independence, basis, and dimension. Orthogonality, projection, least squares approximation; orthogonalization and orthogonal bases. Extension to function spaces. Determinants. Eigenvalues and eigenvectors. Diagonalization. Difference equations and matrix differential equations. Symmetric and Hermitian matrices. Orthogonal and unitary transformations; similarity transformations. Students who plan to continue with upper level math courses should instead consider MATH 225 or 226. After MATH 115 or equivalent. May not be taken after MATH 225 or 226. QR

AMTH 232b / MATH 232b, Advanced Linear Algebra with Applications Ian Adelstein

This course is a natural continuation of MATH 222. The core content includes eigenvectors and the Spectral Theorem for real symmetric matrices; singular value decomposition (SVD) and principle component analysis (PCA); quadratic forms, Rayleigh quotients and generalized eigenvalues. We also consider a number of applications: optimization and stochastic gradient descent (SGD); eigen-decomposition and dimensionality reduction; graph Laplacians and data diffusion; neural networks and machine learning. A main theme of the course is using linear algebra to learn from data. Students complete (computational) projects on topics of their choosing. Prerequisites: MATH 120 and MATH 222, 225, or 226. This is not a proof based course. May not be taken after MATH 240. QR

AMTH 244a or b / MATH 244a or b, Discrete Mathematics Staff

Basic concepts and results in discrete mathematics: graphs, trees, connectivity, Ramsey theorem, enumeration, binomial coefficients, Stirling numbers. Properties of finite set systems. Recommended preparation: MATH 115 or equivalent. QR

AMTH 247b / MATH 247b, Intro to Partial Differential Equations Erik Hiltunen

Introduction to partial differential equations, wave equation, Laplace's equation, heat equation, method of characteristics, calculus of variations, series and transform methods, and numerical methods. Prerequisites: MATH 222 or 225 or 226, MATH 246 or ENAS 194 or equivalents. QR

AMTH 260b / MATH 260b, Basic Analysis in Function Spaces Ronald Coifman

Diagonalization of linear operators, with applications in physics and engineering; calculus of variations; data analysis. MATH 260 is a natural continuation of PHYS 301. Prerequisites: MATH 120, and 222 or 225 or 226. QR

*** AMTH 342a / EENG 432a, Linear Systems** A Stephen Morse

Introduction to finite-dimensional, continuous, and discrete-time linear dynamical systems. Exploration of the basic properties and mathematical structure of the linear systems used for modeling dynamical processes in robotics, signal and image processing, economics, statistics, environmental and biomedical engineering, and control theory. Prerequisite: MATH 222 or permission of instructor. QR

*** AMTH 366b / CPSC 366b / ECON 366b, Intensive Algorithms** Anna Gilbert

Mathematically sophisticated treatment of the design and analysis of algorithms and the theory of NP completeness. Algorithmic paradigms including greedy algorithms, divide and conquer, dynamic programming, network flow, approximation algorithms, and randomized algorithms. Problems drawn from the social sciences, Data Science, Computer Science, and engineering. For students with a flair for proofs and problem solving. Only one of CPSC 365, CPSC 366, or CPSC 368 may be taken for credit. Prerequisites: MATH 244 and CPSC 223. QR

AMTH 420a / MATH 421a, The Mathematics of Data Science Kevin O'Neill

This course aims to be an introduction to the mathematical background that underlies modern data science. The emphasis is on the mathematics but occasional applications are discussed (in particular, no programming skills are required). Covered material may include (but is not limited to) a rigorous treatment of tail bounds in probability, concentration inequalities, the Johnson-Lindenstrauss Lemma as well as fundamentals of random matrices, and spectral graph theory. Prerequisite: MATH 305. QR, SC

AMTH 431a / ECON 431a / S&DS 431a, Optimization and Computation Yang Zhuoran

This course is designed for students in Statistics & Data Science who need to know about optimization and the essentials of numerical algorithm design and analysis. It is an introduction to more advanced courses in optimization. The overarching goal of the course is to teach students how to design algorithms for Machine Learning and Data Analysis (in their own research). This course is not open to students who have taken S&DS 430. Prerequisites: Knowledge of linear algebra, multivariate calculus, and probability. Linear Algebra, by MATH 222, 223 or 230 or 231; Graph Theory, by MATH 244 or CPSC 365 or 366; and comfort with proof-based exposition and problem sets, such as is gained from MATH 230 and 231, or CPSC 366.

*** AMTH 482a, Research Project** John Wettlaufer

Individual research. Requires a faculty supervisor and the permission of the director of undergraduate studies. The student must submit a written report about the results of the project. May be taken more than once for credit.

*** AMTH 491a, Senior Project** John Wettlaufer

Individual research that fulfills the senior requirement. Requires a faculty supervisor and the permission of the director of undergraduate studies. The student must submit a written report about the results of the project.

Applied Physics (APHY)

*** APHY 050a or b / ENAS 050a or b / PHYS 050a or b, Science of Modern Technology and Public Policy** Daniel Prober

Examination of the science behind selected advances in modern technology and implications for public policy, with focus on the scientific and contextual basis of each advance. Topics are developed by the participants with the instructor and with guest lecturers, and may include nanotechnology, quantum computation and cryptography, renewable energy technologies, optical systems for communication and medical diagnostics, transistors, satellite imaging and global positioning systems, large-scale immunization, and DNA made to order. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

*** APHY 100b / ENAS 100b / EPS 105b / EVST 100b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC

APHY 110b / ENAS 110b, The Technological World Owen Miller

An exploration of modern technologies that play a role in everyday life, including the underlying science, current applications, and future prospects. Examples include solar cells, light-emitting diodes (LEDs), computer displays, the global positioning system, fiber-optic communication systems, and the application of technological advances to medicine. For students not committed to a major in science or engineering; no college-level science or mathematics required. Prerequisite: high school physics or chemistry. QR, SC

APHY 151a or b / ENAS 151a or b / PHYS 151a or b, Multivariable Calculus for Engineers Staff

An introduction to multivariable calculus focusing on applications to engineering problems. Topics include vector-valued functions, vector analysis, partial differentiation, multiple integrals, vector calculus, and the theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or equivalent. QR

APHY 194a or b / ENAS 194a or b, Ordinary and Partial Differential Equations with Applications Staff

Basic theory of ordinary and partial differential equations useful in applications. First- and second-order equations, separation of variables, power series solutions, Fourier series, Laplace transforms. Prerequisites: ENAS 151 or MATH 120 or equivalent, and knowledge of matrix-based operations. QR

APHY 293a / PHYS 293a, Einstein and the Birth of Modern Physics A Douglas Stone

The first twenty-five years of the 20th century represent a turning point in human civilization as for the first time mankind achieved a systematic and predictive understanding of the atomic level constituents of matter and energy, and the mathematical laws which describe the interaction of these constituents. In addition, the General Theory of Relativity opened up for the first time a quantitative study of cosmology, of the history of the universe as a whole. Albert Einstein was at the center of these breakthroughs, and also became an iconic figure beyond physics, representing scientist genius engaged in pure research into the fundamental laws of nature. This course addresses the nature of the transition to modern physics, underpinned by quantum and relativity theory, through study of Einstein's science, biography, and historical context. It also presents the basic concepts in electromagnetic theory, thermodynamics and statistical mechanics, special theory of relativity, and quantum mechanics which were central to this revolutionary epoch in science. Prerequisites: Two terms of PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261, or one term of any of these course with permission of instructor. QR, SC

APHY 320a / EENG 320a, Introduction to Semiconductor Devices Mengxia Liu

An introduction to the physics of semiconductors and semiconductor devices. Topics include crystal structure; energy bands in solids; charge carriers with their statistics and dynamics; junctions, p-n diodes, and LEDs; bipolar and field-effect transistors; and device fabrication. Additional lab one afternoon per week. Prepares for EENG 325 and 401. Recommended preparation: EENG 200. PHYS 180 and 181 or permission of instructor QR, SC

APHY 322b, Electromagnetic Waves and Devices Robert Schoelkopf

Introduction to electrostatics and magnetostatics, time varying fields, and Maxwell's equations. Applications include electromagnetic wave propagation in lossless, lossy, and metallic media and propagation through coaxial transmission lines and rectangular waveguides, as well as radiation from single and array antennas. Occasional experiments and demonstrations are offered after classes. Prerequisites: PHYS 180, 181, or 200, 201. QR, SC

APHY 418b / EENG 402b, Advanced Electron Devices Mengxia Liu

The science and technology of semiconductor electron devices. Topics include compound semiconductor material properties and growth techniques; heterojunction, quantum well and superlattice devices; quantum transport; graphene and other 2D material systems. Formerly EENG 418. Prerequisite: EENG 320 or equivalent. QR, SC

*** APHY 420a / PHYS 420a, Thermodynamics and Statistical Mechanics** Nicholas Read

This course is subdivided into two topics. We study thermodynamics from a purely macroscopic point of view and then we devote time to the study of statistical mechanics, the microscopic foundation of thermodynamics. Prerequisites: PHYS 301, 410, and 440 or permission of instructor. QR, SC

APHY 439a / PHYS 439a, Basic Quantum Mechanics Robert Schoelkopf

The basic concepts and techniques of quantum mechanics essential for solid-state physics and quantum electronics. Topics include the Schrödinger treatment of the harmonic oscillator, atoms and molecules and tunneling, matrix methods, and

perturbation theory. Prerequisites: PHYS 181 or 201, PHYS 301, or equivalents, or permission of instructor. QR, SC

APHY 448a / PHYS 448a, Solid State Physics I Yu He

The first term of a two-term sequence covering the principles underlying the electrical, thermal, magnetic, and optical properties of solids, including crystal structure, phonons, energy bands, semiconductors, Fermi surfaces, magnetic resonances, phase transitions, dielectrics, magnetic materials, and superconductors. Prerequisites: APHY 322, 439, PHYS 420. QR, SC

APHY 449b / PHYS 449b, Solid State Physics II Sohrab Ismail-Beigi

The second term of the sequence described under APHY 448. QR, SC

APHY 458a / PHYS 458a, Principles of Optics with Applications Hui Cao

Introduction to the principles of optics and electromagnetic wave phenomena with applications to microscopy, optical fibers, laser spectroscopy, and nanostructure physics. Topics include propagation of light, reflection and refraction, guiding light, polarization, interference, diffraction, scattering, Fourier optics, and optical coherence. Prerequisite: PHYS 430. QR, SC

*** APHY 469a or b, Special Projects** Daniel Prober

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory). Students are expected to consult the director of undergraduate studies and appropriate faculty members to discuss ideas and suggestions for suitable topics. This course may be taken more than once, is graded pass/fail, is limited to Applied Physics majors, and does not count toward the senior requirement. Permission of the faculty adviser and of the director of undergraduate studies is required.

*** APHY 470a, Statistical Methods with Applications in Science and Finance** Sohrab Ismail-Beigi

Introduction to key methods in statistical physics with examples drawn principally from the sciences (physics, chemistry, astronomy, statistics, biology) as well as added examples from finance. Students learn the fundamentals of Monte Carlo, stochastic random walks, and analysis of covariance analytically as well as via numerical exercises. Prerequisites: ENAS 194, MATH 222, and ENAS 130, or equivalents. QR, SC

*** APHY 471a and APHY 472b, Senior Special Projects** Daniel Prober

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory). Students are expected to consult the director of undergraduate studies and appropriate faculty members to discuss ideas and suggestions for suitable topics. This course may be taken more than once and is limited to Applied Physics majors in their junior and senior years. Permission of the faculty adviser and of the director of undergraduate studies is required.

Arabic (ARBC)

ARBC 110a, Elementary Modern Standard Arabic I Staff

Development of a basic knowledge of Modern Standard Arabic. Emphasis on grammatical analysis, vocabulary acquisition, and the growth of skills in speaking, listening, reading, and writing. L1 1½ Course cr

ARBC 120b, Elementary Modern Standard Arabic II Staff

Continuation of ARBC 110. Prerequisite: ARBC 110 or requisite score on a placement test. L2 RP 1½ Course cr

*** ARBC 122a, Modern Standard Arabic for Heritage Learners I** Sarab Al Ani

This course is designed for students who have been exposed to Arabic—either at home or by living in an Arabic speaking country—but who have little or no formal training in the language. The main purpose of the course is to: build on the language knowledge students bring to the classroom to improve their skills and performance in the three modes of communication (Interpersonal, Presentational, and Interpretive), to fulfill various needs. Particular attention is paid to building, controlling, and mastering language structures. Effective study strategies are used in this course to strengthen writing skills in MSA. Various assignments and tasks are designed to improve the learner's understanding of several issues related to culture in various Arabic speaking countries. Prerequisite: Students must take the placement test or with permission of the instructor. L2

*** ARBC 130a, Intermediate Modern Standard Arabic I** Randa Muhammed

Intensive review of grammar; readings from contemporary and classical Arab authors with emphasis on serial reading of unvoweled Arabic texts, prose composition, and formal conversation. Prerequisite: ARBC 120 or requisite score on a placement test. L3 RP 1½ Course cr

ARBC 136a, Beginning Classical Arabic I Staff

Introduction to classical Arabic, with emphasis on grammar to improve analytical reading skills. Readings include Qur'anic passages, literary material in both poetry and prose, biographical entries, and religious texts. Prerequisite: ARBC 120 or permission of instructor. May be taken concurrently with ARBC 130 or 150. L3 RP

ARBC 140b, Intermediate Modern Standard Arabic II Randa Muhammed

Continuation of ARBC 130. Prerequisite: ARBC 130 or requisite score on a placement test. L4 RP 1½ Course cr

*** ARBC 142b, Modern Standard Arabic for Heritage Learners II** Sarab Al Ani

Continuation of ARBC 132, MSA for Heritage Learners I. This course is designed for students who have been exposed to Arabic—either at home or by living in an Arabic-speaking country—but who have little or no formal training in the language. The main purpose of the course is to build on the language knowledge students bring to the classroom to improve their skills and performance in the three modes of communication (Interpersonal, Presentational, and Interpretive) in MSA to fulfill various needs. Particular attention is paid to building, controlling, and mastering language structures. Effective study strategies are used in this course to strengthen writing skills. Various assignments and tasks are designed to improve the learner's understanding of several issues related to culture in various Arabic speaking countries. Prerequisite: ARBC 132 or successful completion of placement test or instructor permission. L3

ARBC 146b, Beginning Classical Arabic II Staff

Continuation of ARBC 136. Prerequisite: ARBC 136 or permission of instructor. May be taken concurrently with ARBC 140 or 151. L4 RP

*** ARBC 150a, Advanced Modern Standard Arabic I** Sarab Al Ani

Further development of listening, writing, and speaking skills. For students who already have a substantial background in Modern Standard Arabic. Prerequisite: ARBC 140 or requisite score on a placement test. L5 RP

*** ARBC 151b, Advanced Modern Standard Arabic II** Sarab Al Ani

Continuation of ARBC 150. Prerequisite: ARBC 150 or requisite score on a placement test. L5 RP

ARBC 156a, Intermediate Classical Arabic I Staff

A course on Arabic grammar and morphology that builds on the skills acquired in ARBC 146/510, with emphasis on vocabulary, grammar, and reading skills and strategies. Readings drawn from a variety of genres, such as biography, history, hadith, and poetry. Previously ARBC 158. Prerequisite: ARBC 146 or 151. L5, HU

ARBC 166b, Intermediate Classical Arabic II Staff

A continuation of Intermediate Classical Arabic grammar and morphology that builds on the skills acquired in ARBC 156/511, with emphasis on vocabulary, grammar, and reading skills and strategies. Readings drawn from a variety of genres, such as biography, history, hadith, and poetry." Previously ARBC 159. Prerequisite: ARBC 156. L5, HU

*** ARBC 168a / MMES 170a, Modern Arab Writers** Muhammad Aziz

Study of novels and poetry written by modern Arab writers. Such writers include Taha Hussein, Zaid Damraj, Huda Barakat, Nizar Qabbani, al-Maqalih, and Mostaghani. Prerequisite: ARBC 151 or permission of instructor. L5

ARBC 191a, Egyptian Arabic Randa Muhammed

A basic course in the Egyptian dialect of Arabic. Principles of grammar and syntax; foundations for conversation and listening comprehension. Prerequisite: ARBC 130 or equivalent. RP

Archaeological Studies (ARCG)

ARCG 110a / HSAR 110a, Introduction to the History of Art: Global Decorative Arts
Staff

Global history of the decorative arts from antiquity to the present. The materials and techniques of ceramics, textiles, metals, furniture, and glass. Consideration of forms, imagery, decoration, and workmanship. Themes linking geography and time, such as trade and exchange, simulation, identity, and symbolic value. HU o Course cr

ARCG 172b / ANTH 172b, Great Hoaxes and Fantasies in Archaeology William
Honeychurch

Examination of selected archaeological hoaxes, cult theories, and fantasies; demonstration of how archaeology can be manipulated to authenticate nationalistic ideologies, religious causes, and modern stereotypes. Examples of hoaxes and fantasies include the lost continent of Atlantis, Piltdown man, ancient giants roaming the earth, and alien encounters. Evaluation of how, as a social science, archaeology is capable of rejecting such interpretations about the past. SO

*** ARCG 242a / NELC 244a, Ancient Egyptian Materials and Techniques: Their Histories and Socio-Economic Implications** Gregory Marouard

This seminar investigates in detail ancient Egyptian materials, techniques, and industries through the scope of archaeology, history, and socioeconomical, textual as well as iconographic data. When possible ethnoarchaeological and experimental approaches of the antique *chaîne-opératoire* are discussed in order to illustrate skills and professions that have now completely disappeared. This class is organized according to various themes within a diachronical approach, from the 4th millennium BC to the Roman Period. Copper and precious metals, construction stones, hard stones and gems, glass and faience production, imported wood or ivory, we explore multiple categories of materials, where and how they were collected or exchanged, the way these products were transported, transformed, refined or assembled and the complex organization of the work involved and administration that was required in order to satisfy the tastes of Egyptian elites or their desires to worship their gods. Some other vernacular *savoir-faire* linked to the everyday life and the death is explored, through food production and mummification practices. The aim of this seminar is not only to give an overview of the history of techniques for this early civilization but, beyond how things were made, to acquire a more critical view of ancient Egyptian culture through the material culture and as well the strong economic and sociologic implications linked to their objects and constructions#rather than the usual focus on its temples and tombs. HU

ARCG 243a / CLCV 160a / HSAR 243a, Greek Art and Architecture Milette Gaifman
Monuments of Greek art and architecture from the late Geometric period (c. 760 B.C.) to Alexander the Great (c. 323 B.C.). Emphasis on social and historical contexts. HU

*** ARCG 255a / ANTH 255a / LAST 255a, Inca Culture and Society** Richard Burger
The history and organization of the Inca empire and its impact on the nations and cultures it conquered. The role of archaeology in understanding the transformation of Andean lifeways; the interplay between ethnohistoric and archaeological approaches to the subject. SO

ARCG 294b / ANTH 294b, The Ancient Maya Oswaldo Chinchilla Mazariegos
Introduction to the archaeological study of ancient Maya civilization in southern Mexico and northern Central America. Maya origins and modes of adaptation to a tropical forest environment; political history of the Classic Maya and competing theories about their collapse; overviews of Maya art, calendar, and writing. SO

*** ARCG 301a / ANTH 301a, Foundations of Modern Archaeology** Richard Burger
Discussion of how method, theory, and social policy have influenced the development of archaeology as a set of methods, an academic discipline, and a political tool. Background in the basics of archaeology equivalent to one introductory course is assumed. SO o Course cr

ARCG 316La / ANTH 316La, Introduction to Archaeological Laboratory Sciences
Ellery Frahm

Introduction to techniques of archaeological laboratory analysis, with quantitative data styles and statistics appropriate to each. Topics include dating of artifacts, sourcing of ancient materials, remote sensing, and microscopic and biochemical analysis. Specific techniques covered vary from year to year. SC

* **ARCG 336b / ANTH 336b / EPS 336b, Geoarchaeology** Ellery Frahm

A survey of the numerous ways in which theories, approaches, techniques, and data from the earth and environmental sciences are used to address archaeological research questions. A range of interfaces between archaeology and the geological sciences are considered. Topics include stratigraphy, geomorphology, site formation processes, climate reconstruction, site location, and dating techniques. Prior introductory coursework in archaeology or geology (or instructor permission) suggested. SC, SO

* **ARCG 354a / ARCG 000 / EVST 354a / NELC 324a, The Ancient State: Genesis and Crisis from Mesopotamia to Mexico** Harvey Weiss

Ancient states were societies with surplus agricultural production, classes, specialization of labor, political hierarchies, monumental public architecture and, frequently, irrigation, cities, and writing. Pristine state societies, the earliest civilizations, arose independently from simple egalitarian hunting and gathering societies in six areas of the world. How and why these earliest states arose are among the great questions of post-Enlightenment social science. This course explains (1) why this is a problem, to this day, (2) the dynamic environmental forces that drove early state formation, and (3) the unresolved fundamental questions of ancient state genesis and crisis, –law-like regularities or a chance coincidence of heterogenous forces? Previously HIST 204J. HU, SO

* **ARCG 372b / ANTH 372b, The Archaeology of Urbanism** Oswaldo Chinchilla Mazariegos

Archaeological studies of ancient cities and urbanism. Topics include the origin and growth of cities; the economic, social, and political implications of urban life; and archaeological methods and theories for the study of ancient urbanism. Case studies include ancient cities around the world. SO

* **ARCG 379b / ANTH 375b, Anthropology of Mobile Societies** William Honeychurch

The social and cultural significance of the ways that hunter-gatherers, pastoral nomads, maritime traders, and members of our own society traverse space. The impact of mobility and transport technologies on subsistence, trade, interaction, and warfare from the first horse riders of five thousand years ago to jet-propulsion tourists of today. SO

* **ARCG 385a / ANTH 385a, Archaeological Ceramics** Anne Underhill

Archaeological methods for analyzing and interpreting ceramics, arguably the most common type of object found in ancient sites. Focus on what different aspects of ceramic vessels reveal about the people who made them and used them. SO

* **ARCG 399b / EVST 399b, Agriculture: Origins, Evolution, Crises** Harvey Weiss

Analysis of the societal and environmental drivers and effects of plant and animal domestication, the intensification of agroproduction, and the crises of agroproduction: land degradation, societal collapses, sociopolitical transformation, sustainability, and biodiversity. SO

* **ARCG 417a / ANTH 417a, Maya Hieroglyphic Writing** Oswaldo Chinchilla Mazariegos

Introduction to the ancient Maya writing system. Contents of the extant corpus, including nametags, royal and ritual commemorations, dynastic and political subjects, and religious and augural subjects; principles and methods of decipherment; overview

of the Maya calendar; comparison with related writing systems in Mesoamerica and elsewhere in the ancient world. SO

* **ARCG 450a / ANTH 450a, Analysis of Lithic Technology** Oswaldo Chinchilla
Mazariegos

Introduction to the analysis of chipped and ground stone tools, including instruction in manufacturing chipped stone tools from obsidian. Review of the development of stone tool technology from earliest tools to those of historical periods; relevance of this technology to subsistence, craft specialization, and trade. Discussion of the recording, analysis, and drawing of artifacts, and of related studies such as sourcing and use-wear analysis. SO

ARCG 464a or b / ANTH 464a or b / E&EB 464a or b, Human Osteology Eric Sargis
A lecture and laboratory course focusing on the characteristics of the human skeleton and its use in studies of functional morphology, paleodemography, and paleopathology. Laboratories familiarize students with skeletal parts; lectures focus on the nature of bone tissue, its biomechanical modification, sexing, aging, and interpretation of lesions. SC, SO o Course cr

* **ARCG 473a / EVST 473a / NELC 373a, Climate Change, Societal Collapse, and Resilience** Harvey Weiss

The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

* **ARCG 491a or b, Senior Research Project in Archaeology** Oswaldo Chinchilla
Mazariegos

Required of all students majoring in Archaeological Studies. Supervised investigation of some archaeological topic in depth. The course requirement is a long essay to be submitted as the student's senior essay. The student should present a prospectus and bibliography to the director of undergraduate studies no later than the third week of the term. Written approval from the faculty member who will direct the reading and writing for the course must accompany the prospectus.

* **ARCG 492b / ANTH 492b / NELC 321b, Imaging Ancient Worlds in Museum Collections** Agnete Lassen and Klaus Wagensohn

What is Digitization of Cultural Heritage? What are its merits, challenges, and best practices? The course highlightst the documentation and interpretation of archaeological artifacts, in particular artifacts from Western Asia. The primary goal of the course is the use of new technologies in computer graphics, including 3D imaging, to support current research in archaeology and anthropology. The course does put particular emphasis on the best practices of digitizing artifacts in collections. The prime study subjects are the artifacts housed in the Yale Babylonian Collection (<https://babylonian-collection.yale.edu>). For some background information on the Collection see here. Students engage directly with the artifacts while practicing the various imaging techniques. HU o Course cr

Architecture (ARCH)

* ARCH 006a, Architectures of Urbanism: Thinking, Seeing, Writing the Just City

Michael Schlabs

What is architecture, and how is it conceived, relative to notions of the urban – to the broader, deeper, messier web of ideas, forms, and fantasies constituting “the city?”

Can architecture play a role in defining the city, as such, or does the city’s political and social construction place it outside the scope of specifically architectural concerns?

Likewise, what role can the city play in establishing, interrogating, and extrapolating the limits of architecture, whether as a practice, a discourse, or a physical manifestation of human endeavor in the material environment? This course addresses these and other, related questions, seeking to position art and architecture in their broader urban, social, cultural, political, intellectual, and aesthetic contexts. It explores issues of social justice as they relate to the material spaces of the modern city, and the manner in which those spaces are identified, codified, and made operative in service of aesthetic, social, and political experience. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. Prerequisite: general knowledge of 20th-century history. HU

ARCH 150a, Introduction to Architecture Alexander Purves and Trattie Davies

Lectures and readings in the language of architecture. Architectural vocabulary, elements, functions, and ideals. Notebooks and projects required. Not open to first-year students. Required for all Architecture majors. HU

* ARCH 154b, Drawing Architecture George Knight

Introduction to the visual and analytical skills necessary to communicate architectural ideas. Observation and documentation of architectural space on the Yale campus.

Drawing exercises introduce the conventions of architectural representation: plan, section, elevation, and isometric drawings, as well as freehand perceptual drawings of architectural space.

* ARCH 161a, Introduction to Structures Erleen Hatfield

Basic principles governing the behavior of building structures. Developments in structural form combined with the study of force systems, laws of statics, and mechanics of materials and members and their application to a variety of structural systems. Prerequisites: trigonometry and some knowledge of calculus. Enrollment limited to 20. QR, SC

* ARCH 162b, Materials in Architecture Timothy Newton

Science and technology of basic building materials studied together with historic and current design applications. Skills and processes required to create, shape, and connect materials experienced through hands-on projects. Technical notebooks, drawings, design and build exercises, and projects required. Enrollment limited to 20.

ARCH 200b / URBN 200b, Scales of Design Bimal Mendis

Exploration of architecture and urbanism at multiple scales from the human to the world. Consideration of how design influences and shapes the material and conceptual spheres through four distinct subjects: the human, the building, the city, and the world. Examination of the role of architects, as designers, in constructing and shaping the inhabited and urban world. Lectures, readings, reviews and four assignments that

address the spatial and visual ramifications of design. Not open to first-year students. Required for all Architecture majors. HU

*** ARCH 250a, Methods and Form in Architecture I** Anne Barrett

Analysis of architectural design of specific places and structures. Analysis is governed by principles of form in landscape, program, ornament, and space, and includes design methods and techniques. Readings and studio exercises required. Enrollment limited to 25. Open only to Architecture majors. 1½ Course cr

*** ARCH 251b, Methods and Form in Architecture II** Michael Schlabs

Continuation of ARCH 250. Analysis of architectural design of specific places and structures. Analysis is governed by principles of form in landscape, program, ornament, and space, and includes design methods and techniques. Readings and studio exercises required. 1½ Course cr

ARCH 260a / HSAR 326a, History of Architecture to 1750 Staff

Introduction to the history of architecture from antiquity to the dawn of the Enlightenment, focusing on narratives that continue to inform the present. The course begins in Africa and Mesopotamia, follows routes from the Mediterranean into Asia and back to Rome, Byzantium, and the Middle East, and then circulates back to mediaeval Europe, before juxtaposing the indigenous structures of Africa and America with the increasingly global fabrications of the Renaissance and Baroque. Emphasis on challenging preconceptions, developing visual intelligence, and learning to read architecture as a story that can both register and transcend place and time, embodying ideas within material structures that survive across the centuries in often unexpected ways. HU 0 Course cr

*** ARCH 271a / HSAR 266a / MMES 126a / SAST 266a, Introduction to Islamic Architecture** Staff

Introduction to the architecture of the Islamic world from the seventh century to the present, encompassing regions of Asia, North Africa, and Europe. A variety of sources and media, from architecture to urbanism and from travelogues to paintings, are used in an attempt to understand the diversity and richness of Islamic architecture. Besides traditional media, the class will make use of virtual tours of architectural monuments as well as artifacts at the Yale University Art Gallery, accessed virtually. HU 0 Course cr

ARCH 280a / AMST 197a / HSAR 219a / URBN 280a, American Architecture and Urbanism Elihu Rubin

Introduction to the study of buildings, architects, architectural styles, and urban landscapes, viewed in their economic, political, social, and cultural contexts, from precolonial times to the present. Topics include: public and private investment in the built environment; the history of housing in America; the organization of architectural practice; race, gender, ethnicity and the right to the city; the social and political nature of city building; and the transnational nature of American architecture. HU 0 Course cr

*** ARCH 306a, Ornamenting Architecture: Cosmos, Nature, Neuroaesthetics** Staff

From foliated friezes to snaking spirals, gruesome gargoyles to graceful guilloches, humans have used ornament for millennia to adorn objects and buildings. What is the function of ornament in the built environment? How does it mediate between the objects it adorns, the viewers it addresses, and the cosmos? What role does it play in orchestrating building occupants' sense of space, order, and time? And is there scientific

evidence for any of these claims? This course provides a venue for exploring these questions through hands-on design and analysis while finding empirical grounding in the emerging fields of biophilic design and neuroaesthetics. Design exercises introduce students to symmetry operations, tessellation, repeat patterns, and foliation, giving the class a basic fluency in the language of ornament. As we study historic precedents and the fundamental geometric properties of ornament, we simultaneously research how these patterns are perceived by the brain, both in the scientific literature and through the use of our own eye trackers and EEG sensors. Students are led through a series of design exercises of increasing complexity in both two and three dimensions, culminating in an ornament project for a shared site. This seminar is meant to nurture methodologies of design that fuse a grounding in the history of ornament with the application of cutting edge technology, enabling novel forms of empirically-grounded design. It is recommended, but not required, that students have some experience with visualization (digital or hand-drawing) and a willingness to explore physical prototyping. HU RP

ARCH 312b / HSAR 312b, Modern Architecture in a Global Context, 1750-present

Craig Buckley

Architects, movements, and buildings central to the development of modern architecture from the mid eighteenth century through to the present. Common threads and differing conceptions of modern architecture around the globe. The relationship of architecture to urban transformation; the formulation of new typologies; architects' responses to new technologies and materials; changes in regimes of representation and media. Architects include Claude Nicolas Ledoux, Giovanni Battista Piranesi, John Soane, Frank Lloyd Wright, Le Corbusier, Ludwig Mies van der Rohe, Lina Bo Bardi, Louis Kahn, and Kenzo Tange. HU o Course cr

*** ARCH 314a / URBN 314a, History of Landscape in Western Europe and the United States: Antiquity to 1950** Warren Fuermann

This course is designed as an introductory survey of the history of landscape architecture and the wider, cultivated landscape in Western Europe and the United States from the Ancient Roman period to mid-twentieth century America. Included in the lectures, presented chronologically, are the gardens of Ancient Rome, medieval Europe, the early and late Italian Renaissance, 17th century France, 18th century Britain, 19th century Britain and America with its public and national parks, and mid-twentieth century America. The course focuses each week on one of these periods, analyzes in detail iconic gardens of the period, and places them within their historical and theoretical context. HU RP

*** ARCH 325a / URBN 417a, Marronage Practice: Architectures, Design Methods, and Urbanisms of Freedom** Ana Duran

This seminar introduces and explores Black, indigenous, and other historically marginalized modes of cultural production—collectively referred to here as “fugitive practices.” The course confronts the erasure (and re-centering) of these modes by rethinking the episteme of architecture—questioning history, planning, and urbanism—but also of the body, the design of objects, and making. Modes of sociocultural and aesthetic production explored in the course may include: improvisation in jazz, hip-hop and social dance; textiles of the Modern African Diaspora and indigenous peoples; informal economies; ingenuity in vernacular architecture; and others. The course is structured around seven two-week “modules,” each containing a seminar discussion,

a design exercise, and a short written accompaniment. It is conducted in collaboration with a parallel seminar being offered by faculty at Howard University. HU RP

* **ARCH 327a / URBN 327a, Difference and the City** Justin Moore

Four hundred and odd years after colonialism and racial capitalism brought twenty and odd people from Africa to the dispossessed indigenous land that would become the United States, the structures and systems that generate inequality and white supremacy persist. Our cities and their socioeconomic and built environments continue to exemplify *difference*. From housing and health to mobility and monuments, cities small and large, north and south, continue to demonstrate intractable disparities. The disparate impacts made apparent by the COVID-19 pandemic and the reinvigorated and global Black Lives Matter movement demanding change are remarkable. Change, of course, is another essential indicator of *difference* in urban environments, exemplified by the phenomena of disinvestment or gentrification. This course explores how issues like climate change and growing income inequality intersect with politics, culture, gender equality, immigration and migration, technology, and other considerations and forms of disruption.

* **ARCH 341b / GLBL 253b / LAST 318b / URBN 341b, Globalization Space** Staff

Infrastructure space as a primary medium of change in global polity. Networks of trade, energy, communication, transportation, spatial products, finance, management, and labor, as well as new strains of political opportunity that reside within their spatial disposition. Case studies include free zones and automated ports around the world, satellite urbanism in South Asia, high-speed rail in Japan and the Middle East, agripoles in southern Spain, fiber optic submarine cable in East Africa, spatial products of tourism in North Korea, and management platforms of the International Organization for Standardization. HU o Course cr

ARCH 345a / URBN 345a, Civic Art: Introduction to Urban Design Alan Plattus

Introduction to the history, analysis, and design of the urban landscape. Principles, processes, and contemporary theories of urban design; relationships between individual buildings, groups of buildings, and their larger physical and cultural contexts. Case studies from New Haven and other world cities. HU

* **ARCH 360a / URBN 360a, Urban Lab: An Urban World** Joyce Hsiang

Understanding the urban environment through methods of research, spatial analysis, and diverse means of representation that address historical, social, political, and environmental issues that consider design at the scale of the entire world. Through timelines, maps, diagrams, collages and film, students frame a unique spatial problem and speculate on urbanization at the global scale. Prerequisites: For non-majors: permission of the instructor is required. For ARCH majors: ARCH 150, 200, and 280. HU 1½ Course cr

* **ARCH 386a or b / ENGL 421a or b, Styles of Academic and Professional Prose** Staff

A seminar and workshop in the conventions of good writing in a specific field. Each section focuses on one academic or professional kind of writing and explores its distinctive features through a variety of written and oral assignments, in which students both analyze and practice writing in the field. Section topics, which change yearly, are listed at the beginning of each term on the English departmental website. This course may be repeated for credit in a section that treats a different genre or style of writing;

may not be repeated for credit toward the major. Formerly ENGL 121. Prerequisite: ENGL 114, 115, 120, or another writing-intensive course at Yale. WR

* **ARCH 450a, Senior Studio** Tei Carpenter

Advanced problems with emphasis on architectural implications of contemporary cultural issues. The complex relationship among space, materials, and program. Emphasis on the development of representations—drawings and models—that effectively communicate architectural ideas. To be taken before ARCH 494. Enrollment limited to Architecture majors. 1½ Course cr

* **ARCH 471a or b, Individual Tutorial** Michael Schlabs

Special courses may be established with individual members of the department only. The following conditions apply: (1) a prospectus describing the nature of the studio program and the readings to be covered must be approved by both the instructor and the director of undergraduate studies; (2) regular meetings must take place between student and instructor; (3) midterm and final reviews are required. For juniors and seniors with DUS approval; meetings by appointment with DUS.

* **ARCH 472a or b, Individual Tutorial Lab** Michael Schlabs

RP ½ Course cr

* **ARCH 490a or b / URBN 490a or b, Senior Research Colloquium** Marta Caldeira
Research and writing colloquium for seniors in the Urban Studies and History, Theory, and Criticism tracks. Under guidance of the instructor and members of the Architecture faculty, students define their research proposals, shape a bibliography, improve research skills, and seek criticism of individual research agendas. Requirements include proposal drafts, comparative case study analyses, presentations to faculty, and the formation of a visual argument. Guest speakers and class trips to exhibitions, lectures, and special collections encourage use of Yale's resources.

Armenian (ARMN)

Art (ART)

* **ART 004b, Words and Pictures** Staff

Introduction to visual narration, the combination of words and pictures to tell a story. Narrative point of view, counternarrative and counterculture, visual satire, personal history, depictions of space and time, and strategies and politics of representation. Sources include illuminated manuscripts, biblical paintings, picture-stories, comic strips, and graphic novels. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU RP

* **ART 006a, Art of the Printed Word** Jesse Marsolais

Introduction to the art and historical development of letterpress printing and to the evolution of private presses. Survey of hand printing; practical study of press operations using antique platen presses and the cylinder proof press. Material qualities of printed matter, connections between content and typographic form, and word/image relationships. HU

* **ART 007b, Art of the Game** Sarah Stevens-Morling

Introduction to interactive narrative through video game programming, computer animation, and virtual filmmaking. Topics include interactive storytelling, video game

development and modification, animation, and virtual film production. Students produce a variety of works including web-based interactive narratives, collaboratively built video games, and short game-animated film production (machinima). Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

*** ART 010a, Interdisciplinary Exploration For Making Fictional Worlds, Flying Machines, and Shaking Things Up** Nathan Carter

Whether you aspire to be an engineer, doctor, or astronaut, it can still be vital to dream and invent#by drawing and sculpting in order to generate ideas and develop strategies for learning how to make something out of nothing. In this course, students consider how artists and inventors have used seemingly unrelated materials and content in order to activate creative thinking and generative activity. Students engage in a wide variety of interdisciplinary activities such as drawing, sculpting, painting, printing, photography, reprographics, instrument-building and sound broadcasting. This course emphasizes experimenting with strategies for generating ideas, images and objects, and employs broad modes of creating, including elements of chance, spontaneity, collaborating communally, and synthesizing disparate elements into the process of making. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

*** ART 014b, Research in the Making** Staff

Artistic research expands the research form to focus on haptic and tactile study of physical and historical objects. Through field trips to various special collections and libraries, including the Beinecke, the Yale Art Gallery, and the Map Collection, students respond to specific objects in the vast resources of Yale University. Group discussions, lectures, and critiques throughout the term help foster individual projects. Each student conducts research through the artistic mediums of drawing, photography, video, and audio, to slowly build an interconnected collection of research that is also an artwork. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

*** ART 106b, Art of the Printed Word** Jesse Marsolais

Introduction to the art and historical development of letterpress printing and to the evolution of private presses. Survey of hand printing; practical study of press operations using antique platen presses and the cylinder proof press. Material qualities of printed matter, connections between content and typographic form, and word/image relationships. This course can not be taken after ART 006, CSYC 331, CSYC 310, or CSYC 401. Open to Yale College students only. HU

*** ART 110b, Sculpture Basics** Sandra Burns

Concepts of space, form, weight, mass, and design in sculpture are explored and applied through basic techniques of construction and material, including gluing and fastening, mass/weight distribution, hanging/mounting, and surface/finishing. Hands-on application of sculptural techniques and review of sculptural ideas, from sculpture as a unified object to sculpture as a fragmentary process. The shops and classroom studio are available during days and evenings throughout the week. Enrollment limited to 12. Recommended to be taken before ART 120–125. HU RP

*** ART 111a or b, Visual Thinking** Staff

An introduction to the language of visual expression, using studio projects to explore the fundamental principles of visual art. Students acquire a working knowledge of visual syntax applicable to the study of art history, popular culture, and art. Projects address all four major concentrations (graphic design, printing/printmaking, photography, and sculpture). No prior drawing experience necessary. Open to all undergraduates. Required for Art majors. HU RP

*** ART 114a or b, Basic Drawing** Staff

An introduction to drawing, emphasizing articulation of space and pictorial syntax. Class work is based on observational study. Assigned projects address fundamental technical and conceptual problems suggested by historical and recent artistic practice. No prior drawing experience required. Open to all undergraduates. Required for Art majors. HU

*** ART 116a, Color Practice** Lisa Kereszi

Study of the interactions of color, ranging from fundamental problem solving to individually initiated expression. The collage process is used for most class assignments. HU RP

ART 120a, Introduction to Sculpture: Wood Elizabeth Tubergen

Introduction to wood and woodworking technology through the use of hand tools and woodworking machines. The construction of singular objects; strategies for installing those objects in order to heighten the aesthetic properties of each work. How an object works in space and how space works upon an object. HU

ART 121a, Introduction to Sculpture: Metal Desmond Lewis

Introduction to working with metal through examination of the framework of cultural and architectural forms. Focus on the comprehensive application of construction in relation to concept. Instruction in welding and general metal fabrication. Ways in which the meaning of work derives from materials and the form those materials take. HU

*** ART 130a or b, Painting Basics** Staff

A broad formal introduction to basic painting issues, including the study of composition, value, color, and pictorial space. Emphasis on observational study. Course work introduces students to technical and historical issues central to the language of painting. Recommended for non-majors and art majors. HU RP

*** ART 132a or b, Introduction to Graphic Design** Staff

A studio introduction to visual communication, with emphasis on the visual organization of design elements as a means to transmit meaning and values. Topics include shape, color, visual hierarchy, word-image relationships, and typography. Development of a verbal and visual vocabulary to discuss and critique the designed world. HU RP

*** ART 136a, Black & White Photography Capturing Light** Lisa Kereszi

An introductory course in black-and-white photography concentrating on the use of 35mm cameras. Topics include the lensless techniques of photograms and pinhole photography; fundamental printing procedures; and the principles of film exposure and development. Assignments encourage the variety of picture-forms that 35mm cameras can uniquely generate. Student work is discussed in regular critiques. Readings examine the invention of photography and the flâneur tradition of small-camera

photography as exemplified in the work of artists such as Henri Cartier-Bresson, Helen Levitt, Robert Frank, and Garry Winogrand. HU RP

*** ART 138a or b, Digital Photography Seeing in Color** Theodore Partin

The focus of this class is the digital making of still color photographs with particular emphasis on the potential meaning of images in an overly photo-saturated world. Through picture-making, students develop a personal visual syntax using color for effect, meaning, and psychology. Students produce original work using a required digital SLR camera. Introduction to a range of tools including color correction, layers, making selections, and fine inkjet printing. Assignments include regular critiques with active participation and a final project. HU RP

*** ART 142a or b / FILM 162a or b, Introductory Documentary Filmmaking** Staff

The art and craft of documentary filmmaking. Basic technological and creative tools for capturing and editing moving images. The processes of research, planning, interviewing, writing, and gathering of visual elements to tell a compelling story with integrity and responsibility toward the subject. The creation of nonfiction narratives. Issues include creative discipline, ethical questions, space, the recreation of time, and how to represent "the truth." RP

*** ART 145b, Introduction to Digital Video** Staff

Introduction to the formal principles and basic tools of digital video production. Experimental techniques taught alongside traditional HD camera operation and sound capture, using the Adobe production suite for editing and manipulation. Individual and collaborative assignments explore the visual language and conceptual framework for digital video. Emphasis on the spatial and visual aspects of the medium rather than the narrative. Screenings from video art, experimental film, and traditional cinema. RP

*** ART 184a, 3D Modeling for Creative Practice** Alvin Ashiatey

Through creation of artwork, using the technology of 3D modeling and virtual representation, students develop a framework for understanding how experiences are shaped by emerging technologies. Students create forms, add texture, and illuminate with realistic lights; they then use the models to create interactive and navigable spaces in the context of video games and virtual reality, or to integrate with photographic images. Focus on individual project development and creative exploration. Frequent visits to Yale University art galleries. This course is a curricular collaboration with The Center for Collaborative Arts and Media at Yale (CCAM). RP

ART 185a, Principles of Animation Ben Hagari

The physics of movement in animated moving-image production. Focus on historical and theoretical developments in animation of the twentieth and twenty-first centuries as frameworks for the production of animated film and visual art. Classical animation and digital stop-motion; fundamental principles of animation and their relation to traditional and digital technologies. RP

*** ART 210b, Sculpture as Object** Desmond Lewis

Introduction to concepts of design and form in sculpture. The use of various materials, including both modern and traditional methods of carving, lamination, assemblage, and finishing. Fundamentals of metal processes such as welding, cutting, grinding, and finishing may be explored on a limited basis. Group discussion complements the studio work. Shops and studio are available during days and evenings throughout the week.

HU RP

*** ART 225b, Adventures in Self-Publishing** Staff

This course introduces students to a wide range of directions and legacies within arts publishing, including the development of fanzines, artists' books, small press comics, exhibition catalogues, "just in time" publications, and social media. Students are given instruction in the Yale School of Art's Print Shop on various printing and binding methods leading to the production of their own publications both individually and in collaboration. Attention is paid to ways artists' publishing has been used to bypass traditional cultural and institutional gatekeepers, to foster community and activism, to increase visibility and representation, and to distribute independent ideas and narratives. Students explore the codex as it relates to contemporary concepts of labor, economics, archives, media forms, information technologies, as well as interdisciplinary and social art practices. Supplemental readings and visits to the Haas Arts Library, the Beinecke Rare Book and Manuscript Library, YUAG's prints and drawings study room, and the Odds and Ends Art Book Fair provide case studies and key examples for consideration. Prerequisite: ART 111.

*** ART 237b, Intermediate Black & White Photography Visual Voice** Lisa Kereszi

A class in black-and-white photography extending the concerns of ART 136 in which students learn to define and refine their own particular photographic voice through regular critiques and exercises designed around the themes of memory, influence and the collecting impulse. Introduction to the use of loaned medium-format cameras. Specialized topics include long-exposure photography, the use of flash, and intermediate-level printing techniques, including an increase in scale. Survey of the rich tradition of photography and the production of specific artists such as Brassai, Diane Arbus with regular exposure to contemporary new voices. Prerequisite: ART 136 or 138, or permission of the instructor. HU RP

*** ART 239a, Photographic Storytelling** Lisa Kereszi

An introductory course that explores the various elements of photographic storytelling, artistic styles, and practices of successful visual narratives. Students focus on creating original bodies of work with digital cameras. Topics include camera handling techniques, photo editing, sequencing, and photographic literacy. Student work is critiqued throughout the term, culminating in a final project. Through a series of lectures, readings and films, students are introduced to influential works in the global canon of photographic history as well as issues and topics by a multitude of voices in contemporary photography and the documentary tradition. Prerequisites: ART 136 or 138, or permission of the instructor.

*** ART 241a / FILM 161a, Introductory Film Writing and Directing** Jonathan Andrews

Problems and aesthetics of film studied in practice as well as in theory. In addition to exploring movement, image, montage, point of view, and narrative structure, students photograph and edit their own short videotapes. Emphasis on the writing and production of short dramatic scenes. Priority to majors in Art and in Film & Media Studies. RP

*** ART 245b, Digital Drawing** Staff

Digital techniques and concepts as they expand the possibilities of traditional drawing. The structure of the digital image; print, video, and projected media; creative and critical explorations of digital imaging technologies. Historical contexts for contemporary artworks and practices utilizing digital technologies. Group critiques of

directed projects. The second half of the course is focused on individual development and exploration. Enrollment limited.

*** ART 264a, Typography!** Alice Chung

An intermediate graphic-design course in the fundamentals of typography, with emphasis on ways in which typographic form and visual arrangement create and support content. Focus on designing and making books, employing handwork, and computer technology. Typographic history and theory discussed in relation to course projects. Prerequisite: ART 132. RP

*** ART 266b, Graphic Design Histories** Staff

This course studies how graphic design responded to (and affected) international, social, political, and technological developments from its inception in ancient Sumeria, Egypt, and China. Emphasis is on examples of identity, persuasive messages, exhibit and environmental, information and data visualization, typography and publication, and design theories from 1450 to 2010 and the relationship of that work to other visual arts and design disciplines. In addition to lectures, assignments include two studio projects in which design is integrated with research and writing. HU

*** ART 285b, Digital Animation** Michael Rader

Introduction to the principles, history, and practice of animation in visual art and film. Historical and theoretical developments in twentieth- and twenty-first-century animation used as a framework for making digital animation. Production focuses on digital stop-motion and compositing, as well as 2-D and 3-D computer-generated animation. Workshops in relevant software. Prerequisites: ART 111, 114, or 145, and familiarity with Macintosh-based platforms.

*** ART 294b, Technology and the Promise of Transformation** Staff

Inherent transformative qualities are embedded within technology; it transforms our lives, the way we perceive or make art, and conversely, art can reflect on these transformations. Students explore the implementation of technologies in their art making from pneumatic kinetics, bioengineering, AR, VR, and works assisted by artificial intelligence—modes of production that carry movement, degradation, and displacement of authorship. The student practice is supported by readings, independent research, and essays on diverse artists and designers who make use of technology in their work or, on the contrary, totally avoid it. This course is a curricular collaboration with The Center for Collaborative Arts and Media at Yale (CCAM).

*** ART 331b, Intermediate Painting** Staff

Further exploration of concepts and techniques in painting, emphasizing the individuation of students' pictorial language. Various approaches to representational and abstract painting. Studio work is complemented by in-depth discussion of issues in historical and contemporary painting. Prerequisite: ART 130, 230, 231, or permission of instructor. RP

ART 332a, Painting Time Sophy Naess

Painting techniques paired with conceptual ideas that explore how painting holds time both metaphorically and within the process of creating a work. Use of different Yale locations as subjects for observational on-site paintings. Prerequisite: ART 130, 230, or 231, or with permission of instructor. HU RP

*** ART 338b, Contemporary Problems in Color with Digital Photography** Theodore Partin

How do you make a contemporary portrait? What is an effective portrait? What makes a portrait today? Can one be made through observation? Is consent required? This class confronts these questions, among others, while addressing the often uneasy relationship between photographer and sitter. Using digital capture with an emphasis on color photography students produce original work in portraiture by committing to a regular and rigorous photographic practice. Range of tools addressed include working with RAW files, masks, compositing and grayscale, and medium and large-scale color inkjet printing. Students produce original work for critique, with special attention to ways in which their technical decisions can clarify their artistic intentions in representing a person. Course fee charged per term. Prerequisite: ART 138 or permission of the instructor. RP

*** ART 339b, Narrative Forms and Documentary Style In Photography after 1967** John Pilson

Artistic approaches to photography, ranging from documentary to studio, and appropriation as they converge on the current "digital" moment. Lectures, readings, and assignments are designed to develop and challenge critical, historical, and visual thought while providing creative inspiration for individual projects. Prerequisites: ART 136, ART 138, or equivalent. RP

ART 341b / FILM 355b, Intermediate Film Writing and Directing Jonathan Andrews
In the first half of the term, students write three-scene short films and learn the tools and techniques of staging, lighting, and capturing and editing the dramatic scene. In the second half of the term, students work collaboratively to produce their films. Focus on using the tools of cinema to tell meaningful dramatic stories. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 241. RP

ART 342b / FILM 356b, Intermediate Documentary Filmmaking Michel Auder
Students explore the storytelling potential of the film medium by making documentaries an art form. The class concentrates on finding and capturing intriguing, complex scenarios in the world and then adapting them to the film form. Questions of truth, objectivity, style, and the filmmaker's ethics are considered by using examples of students' work. Exercises in storytelling principles and screenings of a vast array of films mostly made by independent filmmakers from now to the beginning of the last century. Limited enrollment. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 141 or 142. HU RP

ART 346b, Dematerial/Material American Artist

Exploration of questions and topics pertinent to contemporary sculpture through making, writing, reading, looking, critique, discussions, and field trips. Projects become increasingly self-directed as students develop relationships to materials, techniques, and ideas both familiar and new. Limited enrollment. Prerequisite: ART 120, 121, 122, or equivalent; or with permission of instructor. RP

ART 349b, Advanced Video Installation Ben Hagari

This is an intensive project-based class exploring the production of video installations and the intersections of such mediums as performance, kinetic sculptures, video and sound. Students enhance their skills to create complex environments and sharpen their conceptual and logistical considerations when working with space and time.

Prerequisite: ART 122, prior experience in video or installation, or permission of instructor.

*** ART 355a, Silkscreen Printing** Alexander Valentine

Presentation of a range of techniques in silkscreen and photo-silkscreen, from hand-cut stencils to prints using four-color separation. Students create individual projects in a workshop environment. Prerequisite: ART 114 or equivalent. HU

ART 356a, Printmaking I Lisa Kereszi

An introduction to intaglio (dry point and etching), relief (woodcut), and screen printing (stencil), as well as to the digital equivalents of each technique, including photo screen printing, laser etching, and CNC milling. How the analog and digital techniques inform the outcome of the printed image, and ways in which they can be combined to create more complex narratives. Prerequisite: ART 114 or equivalent. RP

*** ART 368b, Graphic Design Methodologies** Staff

Various ways that design functions; how visual communication takes form and is recognized by an audience. Core issues inherent in design: word and image, structure, and sequence. Analysis and refinement of an individual design methodology. Attention to systematic procedures, techniques, and modes of inquiry that lead to a particular result. Prerequisites: ART 132 and 264, or permission of instructor. RP

*** ART 369b, Interactive Design and the Internet: Software for People** Staff

In this studio course, students create work within the web browser to explore where the internet comes from, where it is today, and where it's going—recognizing that there is no singular history, present, or future, but many happening in parallel. The course in particular focuses on the internet's impact on art—and vice versa—and how technological advance often coincides with artistic development. Students will learn foundational, front-end languages HTML, CSS, and JavaScript in order to develop unique graphic forms for the web that are considered alongside navigation, pacing, and adapting to variable screen sizes and devices. Open to Art majors. No prior programming experience required. Prerequisite: ART 132 or permission of instructor.

RP

ART 371a / MUSI 422a, Sound Art Martin Kersels and Brian Kane

Introduction to sound art, a contemporary artistic practice that uses sound and listening as mediums, often creating psychological or physiological reactions as part of the finished artwork. The history of sound art in relation to the larger history of art and music; theoretical underpinnings and practical production; central debates and problems in contemporary sound art. Includes creation and in-class critique of experimental works. HU

*** ART 379b, Form For Content in Large Format** Benjamin Donaldson

A course for experienced photography students to become more deeply involved with the important technical and aesthetic aspects of the medium, including a concentrated study of operations and conceptual thinking required in the use of loaned analog view cameras, added lighting and advanced printing techniques. Scanning and archival printing of negatives are included. Student work is discussed in regular rigorous critiques. Review of significant historic photographic traditions is covered. Students are encouraged to employ any previous digital training although this class is primarily analog. Prerequisite: ART 237 or permission of instructor. RP

*** ART 395a or b, Junior Seminar** Staff

Ongoing visual projects addressed in relation to historical and contemporary issues. Readings, slide presentations, critiques by School of Art faculty, and gallery and museum visits. Critiques address all four areas of study in the Art major. Prerequisite: at least four courses in Art. HU RP

*** ART 401a, Photography Project Seminar** Lisa Kereszi

A further exploration of the practice of photography through a sustained, singular project executed in a consistent manner over the course of the semester, either by analog or digital means. Student work is discussed in regular critiques, the artist statement is discussed, and lectures are framed around the aesthetic concerns that the students' work provokes. Students are exposed to contemporary issues through visits to Yale's collections and in lectures by guest artists, and are asked to consider their own work within a larger context. Students must work with the technical skills they have already gained in courses that are the pre-reqs, as this is not a skills-based class. Required of art majors concentrating in photography. Prerequisites: ART 136 or 138 and preferably, 237, 338 or 379, or permission of the instructor. ART 136 for those working in analog and, for those working digitally, ART 138. RP

ART 421b, Advanced Drawing Staff

Further instruction in drawing related to all four disciplines taught in the Art major. Emphasis on the development of students' conceptual thinking in the context of the physical reality of the drawing process. Class time is divided between studio work, group critiques, discussion of assigned readings, and visits to working artists' studios. Open to all students by permission of instructor. Art majors prioritized. RP

ART 432b, Painting Studio: The Narrative Figure Staff

A course for intermediate and advanced painting students exploring historical and contemporary issues in figurative painting including portraiture, narrative and history painting. Studio work is complemented by an in-depth study of the gaze, subjectivity, memory, and imagination. After guided assignments, ultimate emphasis will be on self-directed projects. May be taken more than once. Prerequisites: ART 230 and one course from ART 331, 332, or 342, or with permission of instructor. HU RP

*** ART 442a and ART 443b / FILM 483a and FILM 484b, Advanced Film Writing and Directing** Jonathan Andrews

A yearlong workshop designed primarily for majors in Art and in Film & Media Studies making senior projects. Each student writes and directs a short fiction film. The first term focuses on the screenplay, production schedule, storyboards, casting, budget, and locations. In the second term students rehearse, shoot, edit, and screen the film. Priority to majors in Art and in Film & Media Studies. Prerequisite: ART 341.

*** ART 457b, Interdisciplinary Printmaking** Staff

An in-depth examination of planographic techniques, including screen printing, lithography, and digital pigment printing. Relationships to more dimensional forms of printing such as collography, embossment, vacuum bag molding, and 3D printing. Creation of editions as well as unique objects, focusing on both individual techniques and creating hybrid forms. Recommended for Art majors to be taken concurrently with ART 324 or 433. Prerequisite: at least one term of printmaking. RP

ART 468a, Advanced Graphic Design: Ad Hoc Series and Systems Julian Bittiner
Much of the field of design concerns itself with devising systems in an attempt to create aesthetic coherence and reduce creative uncertainties, seeking efficiencies with respect to time, production and materials. However this strategy always comes up against each individual set of circumstances; the materials and content at hand, a particular cast of collaborators, a given timeframe. There is an element of the ad hoc in every piece of design; a need to improvise, interpret, adapt, make exceptions. A second thematic concern of this class is the exploration of medium-specificity and medium-porosity as they relate to such systems. The course is comprised of a series of interconnected prompts across distinct formats in print, motion, and interactive, at a wide variety of scales. A third and final thread is the cultivation of greater awareness of the evolving social and aesthetic functions of design processes, artifacts, and channels of engagement and distribution, within increasingly complex cultural contexts. Prerequisites: ART 264 or 265, and 367 or 368, or permission of instructor. RP

* **ART 469b, Advanced Graphic Design: Interpretation, Translation** Staff
A probe into questions such as how artists can be present as idiosyncratic individuals in their work, and how that work can still communicate on its own to a broad audience. Concentration on making graffiti, i.e., the design of a set of outdoor marks and tours for New Haven. A technological component is included, both in the metaphor of designing outdoor interaction as a way to learn about screen-based interaction and in the final project to design an interface for a handheld computer. Prerequisites: ART 264 or 265, and 367 or 368, or permission of instructor. RP

* **ART 471a and ART 472b, Independent Projects** Staff
Independent work that would not ordinarily be accomplished within existing courses, designed by the student in conjunction with a School of Art faculty member. A course proposal must be submitted on the appropriate form for approval by the director of undergraduate studies and the faculty adviser. Expectations of the course include regular meetings, end-of-term critiques, and a graded evaluation.

* **ART 495a or b, Senior Project I** Staff
A project of creative work formulated and executed by the student under the supervision of an adviser designated in accordance with the direction of the student's interest. Proposals for senior projects are submitted on the appropriate form to the School of Art Undergraduate Studies Committee (USC) for review and approval at the end of the term preceding the last resident term. Projects are reviewed and graded by an interdisciplinary faculty committee made up of members of the School of Art faculty. An exhibition of selected work done in the project is expected of each student. RP

* **ART 496a or b, Senior Project II** Staff
A project of creative work formulated and executed by the student under the supervision of an adviser designated in accordance with the direction of the student's interest. Proposals for senior projects are submitted on the appropriate form to the School of Art Undergraduate Studies Committee (USC) for review and approval at the end of the term preceding the last resident term. Projects are reviewed and graded by an interdisciplinary faculty committee made up of members of the School of Art faculty. An exhibition of selected work done in the project is expected of each student.

Astronomy (ASTR)

* ASTR 040a / PHYS 040a, **Expanding Ideas of Time and Space** Meg Urry

Discussions on astronomy, and the nature of time and space. Topics include the shape and contents of the universe, special and general relativity, dark and light matter, and dark energy. Observations and ideas fundamental to astronomers' current model of an expanding and accelerating four-dimensional universe. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

ASTR 110a, **Planets and Stars** Michael Faison

Astronomy introduction to stars and planetary systems. Topics include the solar system and extrasolar planets, planet and stellar formation, and the evolution of stars from birth to death. No prerequisite other than a working knowledge of elementary algebra. QR, SC

ASTR 120b, **Galaxies and the Universe** Hector Arce

An introduction to stars and stellar evolution; the structure and evolution of the Milky Way galaxy and other galaxies; quasars, active galactic nuclei, and supermassive black holes; cosmology and the expanding universe. No prerequisite other than a working knowledge of elementary algebra. QR, SC

ASTR 155a, **Introduction to Astronomical Observing** Michael Faison

A hands-on introduction to techniques used in astronomy to observe astronomical objects. Observations of planets, stars, and galaxies using on-campus facilities and remote observing with Yale's research telescopes. Use of electronic detectors and computer-aided data processing. Evening laboratory hours required. One previous college-level science laboratory or astronomy course recommended. SC ½ Course cr

ASTR 160a, **Frontiers and Controversies in Astrophysics** Marla Geha

A detailed study of three fundamental areas in astrophysics that are currently subjects of intense research and debate: planetary systems around stars other than the sun; pulsars, black holes, and the relativistic effects associated with them; and the age and ultimate fate of the universe. No prerequisite other than a working knowledge of elementary algebra. QR, SC

ASTR 170b, **Introduction to Cosmology** Priyamvada Natarajan

An introduction to modern cosmological theories and observational astronomy. Topics include aspects of special and general relativity; curved space-time; the Big Bang; inflation; primordial element synthesis; the cosmic microwave background; the formation of galaxies; and large-scale structure. Prerequisite: a strong background in high school mathematics and physics. QR, SC

ASTR 180b, **Introduction to Relativity and Black Holes** Charles Bailyn

Introduction to the theories of special and general relativity, and to relativistic astronomy and astrophysics. Topics include time dilation and length contraction; mass-energy equivalence; space-time curvature; black holes; wormholes; pulsars; quasars; gravitational waves; Hawking radiation. For students not majoring in the physical sciences; some previous acquaintance with high-school physics and/or calculus may be helpful, but is not required. QR, SC

ASTR 210a, **Stars and Their Evolution** Robert Zinn

Foundations of astronomy and astrophysics, focusing on an intensive introduction to stars. Nuclear processes and element production, stellar evolution, stellar deaths and

supernova explosions, and stellar remnants including white dwarfs, neutron stars, and black holes. A close look at our nearest star, the sun. How extrasolar planets are studied; the results of such studies. Prerequisite: a strong background in high school calculus and physics. May not be taken after ASTR 220. QR, SC o Course cr

ASTR 255a / PHYS 295a, Research Methods in Astrophysics Staff

An introduction to research methods in astronomy and astrophysics. The acquisition and analysis of astrophysical data, including the design and use of ground- and space-based telescopes, computational manipulation of digitized images and spectra, and confrontation of data with theoretical models. Examples taken from current research at Yale and elsewhere. Use of the Python programming language. Prerequisite: background in high school calculus and physics. No previous programming experience required. QR, SC RP

ASTR 310a, Galactic and Extragalactic Astronomy Jeffrey Kenney

Structure of the Milky Way galaxy and other galaxies; stellar populations and star clusters in galaxies; gas and star formation in galaxies; the evolution of galaxies; galaxies and their large-scale environment; galaxy mergers and interactions; supermassive black holes and active galactic nuclei. Prerequisites: MATH 115, PHYS 201, and ASTR 210 or 220, or equivalents, or with permission of instructor. QR, SC

ASTR 330b, Scientific Computing in Astrophysics Marla Geha

Scientific computer programming in Astrophysics with a focus on the Python Programming language. Algorithms and workflows for reducing and analyzing Astrophysical datasets, both observational and computational. Emphasis is placed on best coding practices, including readability, version control, documentation, and computational efficiency. Weekly lectures, in-depth tutorial/workshops, and invited outside expert guest speakers. Students complete a programming project based on real astrophysical datasets. Prerequisite: ASTR 255 or permission of instructor. Some basic programming experience in Python is strongly recommended.

ASTR 343b / PHYS 343b, Gravity, Astrophysics, and Cosmology Daisuke Nagai

Introduction to frontier areas of research in astrophysics and cosmology exploring ideas and methods. In--depth discussion of the physics underlying several recent discoveries including extrasolar planets – their discovery, properties, and issues of habitability; black holes – prediction of their properties from GR, observational signatures, and detection; and the accelerating universe – introduction to cosmological models and the discovery of dark energy. Prerequisites: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. QR, SC

ASTR 355b, Observational Astronomy Pieter van Dokkum

Optics for astronomers. Design and use of optical telescopes, photometers, spectrographs, and detectors for astronomical observations. Introduction to error analysis, concepts of signal-to-noise, and the reduction and analysis of photometric and spectroscopic observations. Prerequisite: one astronomy course numbered above 200, or permission of instructor. Previous experience with computer programming recommended. QR, SC RP

ASTR 380b, Stellar Populations Robert Zinn

The stellar populations of our galaxy and galaxies of the Local Group. Topics include the properties of stars and star clusters, stellar evolution, and the structure and

evolution of our galaxy. Prerequisites: PHYS 201 and MATH 120, and one astronomy course numbered above 200. Taught in alternate years. QR, SC RP

ASTR 385b, Introduction to Radio Astronomy Hector Arce

Introduction to the theory and techniques of radio astronomy, including radio emission mechanisms, propagation effects, antenna theory, interferometry, and spectroscopy. Discussion of specific sources such as Jupiter, radio stars, molecular clouds, radio galaxies, ETI, and the microwave background. Includes observational exercises with a small radio telescope. Prerequisites: MATH 120 and PHYS 201 or equivalents. QR, SC

ASTR 420a, Computational Methods for Astrophysics Paolo Coppi

The analytic, numerical, and computational tools necessary for effective research in astrophysics and related disciplines. Topics include numerical solutions to differential equations, spectral methods, and Monte Carlo simulations. Applications to common astrophysical problems including fluids and N-body simulations. Prerequisites: ASTR 320, MATH 120, 222 or 225, and 246. QR RP

ASTR 450a, Stellar Astrophysics Sarbani Basu

The physics of stellar atmospheres and interiors. Topics include the basic equations of stellar structure, nuclear processes, stellar evolution, white dwarfs, and neutron stars. Prerequisites: PHYS 201 and MATH 120. Taught in alternate years. QR, SC

*** ASTR 471a and ASTR 472b, Independent Project in Astronomy** Marla Geha

Independent project supervised by a member of the department with whom the student meets regularly. The project must be approved by the instructor and by the director of undergraduate studies; the student is required to submit a complete written report on the project at the end of the term.

*** ASTR 490a and ASTR 491b, The Two-Term Senior Project** Marla Geha

A two-term independent research project to fulfill the senior requirement for the B.S. degree. The project must be supervised by a member of the department and approved by the director of undergraduate studies.

*** ASTR 492a or b, The One-Term Senior Project** Marla Geha

A one-term independent research project or essay to fulfill the senior requirement for the B.A. degree. The project must be supervised by a member of the department and approved by the director of undergraduate studies.

Biology (BIOL)

BIOL 101a or b, Biochemistry and Biophysics Staff

The study of life at the molecular level. Topics include the three-dimensional structures and function of large biological molecules, the human genome, and the design of antiviral drugs to treat HIV/AIDS. The first of four modules in a yearlong foundational biology sequence; meets for the first half of the term. SC o Course cr

BIOL 102a or b, Principles of Cell Biology Staff

The study of cell biology and membrane physiology. Topics include organization and functional properties of biological membranes, membrane physiology and signaling, rough endoplasmic reticulum and synthesis of membrane/secretory membrane proteins, endocytosis, the cytoskeleton, and cell division. The second of four modules in a yearlong foundational biology sequence; meets for the second half of the term. Prerequisite: BIOL 101. SC o Course cr

*** BIOL 103a or b, Genetics and Development** Staff

Foundation principles for the study of genetics and developmental biology. How genes control development and disease; Mendel's rules; examples of organ physiology. The third of four modules in a yearlong foundational biology sequence; meets for the first half of the term. Prerequisites: BIOL 101 and 102. SC o Course cr

BIOL 104a or b, Principles of Ecology and Evolutionary Biology Staff

The study of evolutionary biology, animal behavior, and the history of life. Evolutionary transitions and natural selection. Adaptation at genic, chromosomal, cellular, organismal, and supra-organismal levels. Distributional and social consequences of particular suites of organismal adaptations. The fourth of four modules in a yearlong foundational biology sequence; meets for the second half of the term. Prerequisites: BIOL 101, 102, and 103. SC o Course cr

Biomedical Engineering (BENG)

*** BENG 205a, Discovery and Design in Biomedical Research** Jay Humphrey

Multi-disciplinary and team-based research approach to the study of clinical dilemma. Focus on an important health care problem, bringing to bear concepts and principles from diverse areas to identify possible solutions. Study of precision regenerative medicine as it involves aspects of bioengineering, materials science, immunobiology, mechanobiology, computational modeling, and experimental design, as well as hands-on fabrication and materials testing (i.e., data collection and analysis). Prerequisites: MATH 115 and MATH 120 or ENAS 151. SC

BENG 230a / MB&B 330a / MCDB 330a / NSCI 324a, Modeling Biological Systems I

Thierry Emonet

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116. BIOL 101-104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

BENG 249b, Introduction to Biomedical Computation Staff

Computational and mathematical tools used in biomedical engineering for the simulation of biological systems and the analysis of biomedical data. Basics of computational programming in MATLAB; applications to modeling, design, and statistical and data analysis. Prerequisite: MATH 120 or ENAS 151. QR o Course cr

* **BENG 280a, Sophomore Seminar in Biomedical Engineering** Cristina Rodriguez
Study of past successes and future needs of the multidisciplinary field of biomedical engineering. Areas of focus include: biomolecular engineering, including drug delivery and regenerative medicine; biomechanics, including mechanobiology and multiscale modeling; biomedical imaging and sensing, including image construction and analysis; and systems biology. ½ Course cr

* **BENG 350a / MCDB 310a, Physiological Systems** Staff
Regulation and control in biological systems, emphasizing human physiology and principles of feedback. Biomechanical properties of tissues emphasizing the structural basis of physiological control. Conversion of chemical energy into work in light of metabolic control and temperature regulation. Prerequisites: CHEM 165 or 167 (or CHEM 113 or 115), or PHYS 180 and 181; MCDB 120, or BIOL 101 and 102. SC
o Course cr

BENG 351b / CENG 351b, Biotransport and Kinetics Staff
Creation and critical analysis of models of biological transport and reaction processes. Topics include mass and heat transport, biochemical interactions and reactions, and thermodynamics. Examples from diverse applications, including drug delivery, biomedical imaging, and tissue engineering. Prerequisites: MATH 115, ENAS 194; BIOL 101 and 102; CHEM 161, 163, or 167; BENG 249. QR o Course cr

BENG 352b, Biomedical Signals and Images Lawrence Staib and James Duncan
Principles and methods used to represent, model, and process signals and images arising from biomedical sources. Topics include continuous and discrete linear systems analysis, Fourier analysis and frequency response, metrics for signal similarity, and noise filtering. Biomedical examples range from one-dimensional electrical signals in nerves and muscles to two-dimensional images of organs and cells. Prerequisite: MATH 120 or ENAS 151. BENG 249, 350, and ENAS 194 strongly recommended. QR

BENG 353a / PHYS 353a, Introduction to Biomechanics Michael Murrell
An introduction to the biomechanics used in biosolid mechanics, biofluid mechanics, biothermomechanics, and biochemomechanics. Diverse aspects of biomedical engineering, from basic mechanobiology to the design of novel biomaterials, medical devices, and surgical interventions. Prerequisites: PHYS 180, 181, MATH 115, and ENAS 194. QR o Course cr

* **BENG 355La, Physiological Systems Laboratory** Staff
Introduction to laboratory techniques and tools used in biomedical engineering for physiological measurement. Topics include bioelectric measurement, signal processing, and bone mechanics. Enrollment limited to majors in Biomedical Engineering, except by permission of the director of undergraduate studies. SC o Course cr

* **BENG 356Lb, Biomedical Engineering Laboratory** Staff
Continuation of BENG 355L, introducing laboratory techniques and tools used in biomedical engineering. Topics include biomaterials and cell interactions, magnetic resonance spectroscopy and imaging, and image processing and machine learning. Enrollment limited. SC o Course cr

* **BENG 403b / ECON 463b, The Economics and Science of Medicine** Gregory Raskin and Yashodhara Dash
This multidisciplinary class is an exploration of the background of today's bestselling medicines, their huge commercial impact, and the companies that created them. It

focuses on the most compelling aspects of drug development and company formation in the context of topical issues like cancer treatment, gene editing, stem cell therapy, the opioid epidemic, and drug pricing controversies. Prerequisite: Introductory or intermediate microeconomics, introductory or intermediate Biology, Molecular Biology, Chemistry or Biomedical Engineering. SO

BENG 404b / MENG 404b, Medical Device Design and Innovation Daniel Wiznia and Steven Tommasini

The engineering design, project planning, prototype creation, and fabrication processes for medical devices that improve patient conditions, experiences, and outcomes. Students develop viable solutions and professional-level working prototypes to address clinical needs identified by practicing physicians. Some attention to topics such as intellectual property, the history of medical devices, documentation and reporting, and regulatory affairs. o Course cr

* **BENG 406b, Medical Software Design** Xenophon Papademetris

Software design and implementation for medical applications, with emphasis on how new ideas can be developed within today's healthcare regulatory environment. This is a project-based class. The lectures provide essential material to help the students successfully complete their projects. In particular, the lectures cover material in the following four broad areas: (i) Medical software design based on a clinical need; (ii) Needs identification, verification, validation, and overview of the FDA regulatory process; (iii) Introductory material in experimental design, image analysis, and machine learning as needed by the projects; (iv) An introduction to business development: from a project to a product. We also examine proposed FDA regulations on the use of machine learning in medical devices and issues related to the use of these techniques in medical software in general. Prerequisite: Strong programming background in at least one programming language. Instructor permission required. SC

* **BENG 410a, Physical and Chemical Basis of Bioimaging and Biosensing** Douglas Rothman, Ansel Hillmer, and Fahmeed Hyder

Basic principles and technologies for sensing the chemical, electrical, and structural properties of living tissues and of biological macromolecules. Topics include magnetic resonance spectroscopy, microelectrodes, fluorescent probes, chip-based biosensors, X-ray and electron tomography, and MRI. Prerequisites: BENG 351 and 352 or permission of instructor. QR, SC

BENG 411b, BioMEMS and Biomedical Microdevices Rong Fan

Principles and applications of micro- and nanotechnologies for biomedicine. Approaches to fabricating micro- and nanostructures. Fluid mechanics, electrokinetics, and molecular transport in microfluidic systems. Integrated biosensors and microTAS for laboratory medicine and point-of-care uses. High-content technologies, including DNA, protein microarrays, and cell-based assays for differential diagnosis and disease stratification. Emerging nanobiotechnology for systems medicine. Prerequisites: CHEM 161, 165, or 167 (or CHEM 112, 114, or 118), and ENAS 194. SC

* **BENG 415a / ENAS 415a, Practical Applications of Bioimaging and Biosensing**

Daniel Coman, Ansel Hillmer, and Evelyn Lake

Detecting, measuring, and quantifying the structural and functional properties of tissue is of critical importance in both biomedical research and medicine. This course focuses on the practicalities of generating quantitative results from raw bioimaging

and biosensing data to complement other courses focus on the theoretical foundations which enable the collection of these data. Participants in the course work with real, cutting-edge data collected here at Yale. They become familiar with an array of current software tools, denoising and processing techniques, and quantitative analysis methods that are used in the pursuit of extracting meaningful information from imaging data. The subject matter of this course ranges from bioenergetics, metabolic pathways, molecular processes, brain receptor kinetics, protein expression and interactions to wide spread functional networks, long-range connectivity, and organ-level brain organization. The course provides a unique hands-on experience with processing and analyzing *in vitro* and *in vivo* bioimaging and biosensing data that is relevant to current research topics. The specific imaging modes which are covered include *in vivo* magnetic resonance spectroscopy (MRS) and spectroscopic imaging (MRSI), functional, structural, and molecular imaging (MRI), wide-field fluorescent optical imaging, and positron emission tomography (PET). The course provides the necessary background in biochemistry, bioenergetics, and biophysics for students to motivate the image manipulations which they learn to perform. Prerequisites: Math through first order differential equations, PHYS 180/181, CHEM 161, BIOL 101/102, BENG 249 or other experience with scientific software like MATLAB®, BENG 350 and BENG 410 (both of which can be taken at the same time as this course) SC o Course cr

*** BENG 422a, Engineering and Biophysical Approaches to Cancer** Michael Mak
This course focuses on engineering and biophysical approaches to cancer. The course examines the current state of the art understanding of cancer as a complex disease and the advanced engineering and biophysical methods developed to study and treat this disease. All treatment methods are covered. Basic quantitative and computational backgrounds are required. Prerequisites: BENG 249 or equivalent, MATH 120 or equivalent. QR, SC

*** BENG 435b, Biomaterial-Tissue Interactions** Themis Kyriakides
Study of the interactions between tissues and biomaterials, with an emphasis on the importance of molecular- and cellular-level events in dictating the performance and longevity of clinically relevant devices. Attention to specific areas such as biomaterials for tissue engineering and the importance of stem/progenitor cells, as well as biomaterial-mediated gene and drug delivery. Prerequisites: CHEM 161, 165, or 167 (or CHEM 112, 114, or 118); MCDB 120, or BIOL 101 and 102; or equivalents. SC

BENG 444a, Modern Medical Imaging: Lecture and Demonstrations Chi Liu, Dana Peters, and Gigi Galiana
Survey of engineering and physics foundations of modern medical imaging modalities with an emphasis on immersive and interactive experiences. Traditional lectures are balanced with guest lectures on state-of-the-art techniques and opportunities to observe procedures, acquire imaging data and reconstruct images. Modalities include MRI, X-ray, CT, SPECT, PET, optical and ultrasound methods. Prerequisite: BENG 352 or similar background. QR, SC

BENG 445a / EENG 445a, Biomedical Image Processing and Analysis James Duncan and Lawrence Staib
This course is an introduction to biomedical image processing and analysis, covering image processing basics and techniques for image enhancement, feature extraction, compression, segmentation, registration and motion analysis including traditional and machine learning techniques. Student learn the fundamentals behind image processing

and analysis methods and algorithms with an emphasis on biomedical applications.

Prerequisite: BENG 352 or EENG 310 or permission of instructors. Recommended preparation: familiarity with probability theory.

BENG 449b, Biomedical Data Analysis Staff

Study of biological and medical data analysis associated with applications of biomedical engineering. Provides basics of probability and statistics, as well as analytical approaches for determination of quantitative biological parameters from experimental data. Includes substantial programming in MATLAB. Prerequisite: MATH 120 or ENAS 151. After or concurrently with ENAS 194. QR o Course cr

BENG 453b, Continuum Biomechanics Jay Humphrey

Advanced state-of-the-art methods of continuum and computational biomechanics. New theories of soft tissue growth, remodeling, disease progression, healing, and aging. Emphasis on mechanics driven by advances in vascular mechanobiology. Prerequisite: BENG 353. QR

* **BENG 456b, Molecular and Cellular Biomechanics** Michael Murrell

The basic mechanical principles at the molecular and cellular level that underlie the major physical behaviors of the cell, from cell division to cell migration. Basic cellular physiology, methodology for studying cell mechanical behaviors, models for understanding the cellular response under mechanical stimulation, and the mechanical impact on cell differentiation and proliferation. Prerequisites: MENG 211 and 280 or equivalents, and experience with MATLAB. Recommended preparation: BENG 353 and MCDB 205. QR, SC

BENG 463a, Immunoengineering Tarek Fahmy

Immuno-engineering uses engineering and applied sciences to better understand how the immune system works. It also uses immunity to build better models and biomaterials that help fight diseases such as cancer, diabetes, lupus, MS, etc. This is an integrative class. It integrates what we know in ENAS with what we know in Immunity to address critical and urgent concerns in health and disease. Students learn that analytical tools and reagents built by engineers address some extremely significant problems in immunity, such as optimal vaccine design. Students also have the opportunity to apply new understandings towards gaping holes in immunotherapy and immunodiagnostics. Prerequisite: A basic understanding of biochemistry, biophysics, cell biology; calculus and differential equations. QR, SC

BENG 465b / MB&B 361b / MCDB 361b / NSCI 325b, Modeling Biological Systems II

Joe Howard

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

BENG 467b, Systems Biology of Cell Signaling Andre Levchenko

Approaches from systems biology to the fundamental processes underlying both the sensory capability of individual cells and cell-to-cell communication in health and disease. Prerequisites: BENG 249 and ENAS 194, or equivalents. QR, SC

BENG 468b, Topics in ImmunoEngineering Tarek Fahmy

This course addresses the intersection of Immunobiology with Engineering and Biophysics. It invokes engineering tools, such as biomaterials, solid-state devices, nanotechnology, biophysical chemistry, and chemical engineering towards developing newer and effective solutions to cancer immunotherapy, autoimmune therapy, vaccine design, transplantation, allergy, asthma, and infections. The central theme is that dysfunctional immunity is responsible for a wide range of disease states and that engineering tools and methods can forge a link between the basic science and clinically translatable solutions that will potentially be "modern cures" to disease. This course is a follow-up to BENG 463, Immunoengineering and focuses more on the clinical translation aspect as well as new understandings in immunology and how they can be translated to the clinic and eventually to the market. Prerequisites: BENG 463, Differential Equations, Advanced Calculus. SC

BENG 469a, Single-Cell Biology, Technologies, and Analysis Rong Fan

This course is to teach the principles of single-cell heterogeneity in human health and disease as well as computational techniques for single-cell analysis, with a particular focus on the omics-level data. Topics to be covered include single-cell level morphometric analysis, genomic alteration analysis, epigenomic analysis, mRNA transcriptome sequencing, small RNA profiling, surface epitope, intracellular signaling protein, and secreted protein analysis, metabolomics, multi-omics, and spatially resolved single-cell omics mapping. The students are expected to perform computational analysis of single-cell high-dimensional datasets to identify population heterogeneity, identify cell types, states, and differentiation trajectories. Finally, case studies are provided to show the power of single-cell analysis in therapeutic target discovery, biomarker research, clinical diagnostics, and personalized medicine. Lab tours may be provided to show how single-cell omics data are generated and how high-throughput sequencing is conducted. SC

*** BENG 471a and BENG 472b, Special Projects** Lawrence Staib

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics. This course, offered Pass/Fail, can be taken at any time during a student's career, and may be taken more than once. For the Senior Project, see BENG 473, 474. Permission of both the instructor and the director of undergraduate studies is required.

*** BENG 473a and BENG 474b, Senior Project** Lawrence Staib

Faculty-supervised biomedical engineering projects focused on research (laboratory or theory) or engineering design. Students should consult with the director of undergraduate studies and appropriate faculty mentors for suitable projects. BENG 473 is taken during the fall term of the senior year and BENG 474 is taken during the spring term of the senior year. Permission of both the faculty mentor and the director of undergraduate studies is required.

BENG 475a / CPSC 475a / EENG 475a, Computational Vision and Biological Perception Steven Zucker

An overview of computational vision with a biological emphasis. Suitable as an introduction to biological perception for computer science and engineering students, as well as an introduction to computational vision for mathematics, psychology, and

physiology students. Prerequisite: CPSC 112 and MATH 120, or with permission of instructor. QR, SC RP

BENG 476b / CPSC 476b, Advanced Computational Vision Steven Zucker
Advanced view of vision from a mathematical, computational, and neurophysiological perspective. Emphasis on differential geometry, machine learning, visual psychophysics, and advanced neurophysiology. Topics include perceptual organization, shading, color and texture analysis, and shape description and representation. After CPSC 475. QR, SC

* **BENG 480a, Seminar in Biomedical Engineering** Staff
Oral presentations and written reports by students analyzing papers from scientific journals on topics of interest in biomedical engineering, including discussions and advanced seminars from faculty on selected subjects. (For Class of 2020 and beyond this course is worth .5 credit.) ½ Course cr

* **BENG 485b, Fundamentals of Neuroimaging** Fahmeed Hyder, Elizabeth Goldfarb, and Douglas Rothman
The neuroenergetic and neurochemical basis of several dominant neuroimaging methods, including fMRI. Technical aspects of different methods, interpretation of results, and controversies or challenges regarding the application of fMRI and related methods in medicine. WR, SC

Bosnian-Serbian-Croatian (SBCR)

SBCR 110a, Elementary Bosnian-Croatian-Serbian I Staff
The first half of a two-term introduction to Bosnian-Croatian-Serbian designed to develop skills in comprehension, reading, speaking, and writing. The grammatical structure and the writing systems of the languages; communication on topics drawn from daily life. Study of Serbian, Bosnian, and Croatian culture, and of south Slavic culture more generally. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

* **SBCR 120b, Elementary Bosnian-Croatian-Serbian II** Staff
The second half of a two-term introduction to Bosnian-Croatian-Serbian designed to develop skills in comprehension, reading, speaking, and writing. The grammatical structure and the writing systems of the languages; communication on topics drawn from daily life. Study of Serbian, Bosnian, and Croatian culture, and of south Slavic culture more generally. Prerequisite: SBCR 110 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 RP 1½ Course cr

SBCR 130a, Intermediate Bosnian Croatian Serbian I Staff
This intermediate course is a continuation of the elementary course and is intended to enhance overall communicative competence in the language. This course moves forward from the study of the fundamental systems and vocabulary of the Bosnian/Croatian/Serbian to rich exposure to the spoken and written language with the wide range of speakers and situations. SBCR 120, or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University.

Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

*** SBCR 140b, Intermediate Bosnian Croatian Serbian II** Staff

The intermediate course in BCS is a continuation of the elementary course and is intended to enhance overall communicative competence in the language. This course moves forward from the study of the fundamental systems and vocabulary of the Bosnian/Croatian/Serbian to rich exposure to the spoken and written language with the wide range of speakers and situations. Prerequisite: SBCR 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

British Studies (BRST)

Burmese (BURM)

BURM 110a, Elementary Burmese I Staff

This course aims to train students to achieve basic skills in Burmese. The students develop competency in reading and writing Burmese script and also learn basic spoken Burmese. This course is taught through distance learning from Cornell University using videoconferencing technology. Interested students may e-mail minjin.hashbat@yale.edu for information. L1 RP 1½ Course cr

BURM 120b, Elementary Burmese II Staff

This course aims to give the students a confident and enjoyable start in speaking Burmese, focusing on what they are most likely to need when visiting the country. It covers the basics of pronunciation and grammar. Prerequisite: BURM 110 or equivalent. This course is taught through distance learning from Cornell University using videoconferencing technology. Interested students may e-mail minjin.hashbat@yale.edu for information. L2 RP 1½ Course cr

Chemical Engineering (CENG)

CENG S300b / CENG 300b, Chemical Engineering Thermodynamics Mingjiang Zhong

Online Course. This is a rigorous introductory course in thermodynamics. Material will include the first and second laws of thermodynamics, cyclic processes, chemical reaction and phase equilibria, and an introduction to statistical thermodynamics. The goal of this course is for students to obtain the necessary qualitative knowledge and quantitative skills for solving engineering science problems in thermodynamics. Prerequisite: Multivariable calculus. 1 Credit. Technology Fee: \$85. Tuition: \$4,500. Session B: July 12 - August 13. QR, SC

*** CENG 120a / ENAS 120a / ENVE 120a, Introduction to Environmental Engineering**
John Fortner

Introduction to engineering principles related to the environment, with emphasis on causes of problems and technologies for abatement. Topics include air and water pollution, global climate change, hazardous chemical and emerging environmental

technologies. Prerequisites: high school calculus and chemistry or CHEM 161, 165 or CHEM 163, 167 (may be taken concurrently) or permission of instructor. QR, SC

CENG 210a / ENVE 210a, Principles of Chemical Engineering and Process Modeling

Peijun Guo

Analysis of the transport and reactions of chemical species as applied to problems in chemical, biochemical, and environmental systems. Emphasis on the interpretation of laboratory experiments, mathematical modeling, and dimensional analysis. Lectures include classroom demonstrations. Prerequisite: MATH 120 or permission of instructor.

QR, SC RP

CENG 300b / CENG S300b, Chemical Engineering Thermodynamics

Mingjiang Zhong

Analysis of equilibrium systems. Topics include energy conservation, entropy, heat engines, Legendre transforms, derived thermodynamic potentials and equilibrium criteria, multicomponent systems, chemical reaction and phase equilibria, systematic derivation of thermodynamic identities, criteria for thermodynamic stability, and introduction to statistical thermodynamics. Prerequisite: MATH 120 or ENAS 151 or permission of instructor. QR, SC RP

CENG 301b, Chemical Kinetics and Chemical Reactors

Shu Hu

Physical-chemical principles and mathematical modeling of chemical reactors. Topics include homogeneous and heterogeneous reaction kinetics, catalytic reactions, systems of coupled reactions, selectivity and yield, chemical reactions with coupled mass transport, nonisothermal systems, and reactor design. Applications from problems in environmental, biomedical, and materials engineering. Prerequisite: ENAS 194 or permission of instructor. QR, SC RP

CENG 314a / ENVE 314a, Transport Phenomena I

Kyle Vanderlick

First of a two-semester sequence. Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of the instructor. QR, SC RP

CENG 315b / ENVE 315b, Transport Phenomena II

Amir Haji-Akbari

Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of instructor. QR, SC

CENG 345b / ENAS 345b, Principles and Applications of Interfacial Phenomena

Kyle Vanderlick

This course covers the nature and consequences of both flexible and rigid interfaces, such as those associated with liquids and solids respectively. We examine the properties of interfaces as they exist alone, as a collective (e.g., colloids), and also as they interact

demonstrably with one another. Examples of the latter include thin films, confined fluids and biological membranes. An integral part of this course is the introduction and application of engineering analysis (e.g., finite element analysis) to calculate and predict behaviors central to technological applications. SC

CENG 351b / BENG 351b, Biotransport and Kinetics Staff

Creation and critical analysis of models of biological transport and reaction processes. Topics include mass and heat transport, biochemical interactions and reactions, and thermodynamics. Examples from diverse applications, including drug delivery, biomedical imaging, and tissue engineering. Prerequisites: MATH 115, ENAS 194; BIOL 101 and 102; CHEM 161, 163, or 167; BENG 249. QR o Course cr

CENG 373a / ENVE 373a, Air Pollution Control Drew Gentner

An overview of air quality problems worldwide with a focus on emissions, chemistry, transport, and other processes that govern dynamic behavior in the atmosphere. Quantitative assessment of the determining factors of air pollution (e.g., transportation and other combustion-related sources, chemical transformations), climate change, photochemical “smog,” pollutant measurement techniques, and air quality management strategies. Prerequisite: ENVE 120. QR, SC RP

* **CENG 377b / ENVE 377b, Water-Energy Nexus** Lea Winter

This course explores processes and technologies at the water-energy nexus. We utilize chemical and environmental engineering fundamentals to explore the links between maintaining clean water supply and energy security globally, as well as implications for environmental contamination and climate change. We develop a quantitative understanding of water chemistry and energy considerations for topics including traditional water and wastewater treatment, energy recovery from wastewater, membrane processes, water electrolysis for energy storage and electrochemical contaminant conversion, industrial water consumption and wastewater production, underground water sources and water for oil and gas, opportunities for reuse of nontraditional source waters and contaminant valorization, and considerations for decentralization, resilience, and electrification. Quantitative understanding of these processes will be attained based on mass and energy balances, systems engineering, thermodynamics, and kinetics. Prerequisite: ENVE 120 or permission of instructor. The course is primarily designed for juniors and seniors majoring in environmental engineering, but students in other engineering majors are welcome. Students in non-engineering majors are also welcome but are encouraged to communicate with the instructor to make sure they have sufficient background knowledge in required mathematics. QR, SC

CENG 411a, Separation and Purification Processes Paul Van Tassel

Theory and design of separation processes for multicomponent and/or multiphase mixtures via equilibrium and rate phenomena. Topics include single-stage and cascaded absorption, adsorption, extraction, distillation, partial condensation, filtration, and crystallization processes. Applications to environmental engineering (air and water pollution control), biomedical-chemical engineering (artificial organs, drug purification), food processing, and semiconductor processing. Prerequisite: CENG 300 or 315 or permission of instructor. QR, SC RP

CENG 412Lb, Chemical Engineering Laboratory and Design Lisa Pfefferle

An introduction to design as practiced by chemical and environmental engineers. Engineering fundamentals, laboratory experiments, and design principles are applied toward a contemporary chemical process challenge. Sustainability and economic considerations are emphasized. SC

CENG 416b / ENVE 416b, Chemical Engineering Process Design Yehia Khalil

Study of the techniques for and the design of chemical processes and plants, applying the principles of chemical engineering and economics. Emphasis on flowsheet development and equipment selection, cost estimation and economic analysis, design strategy and optimization, safety and hazards analysis, and environmental and ethical considerations. Enrollment limited to seniors majoring in Chemical Engineering or Environmental Engineering. QR, SC RP

CENG 471a or b, Independent Research Paul Van Tassel

Faculty-supervised individual student research and design projects. Emphasis on the integration of mathematics with basic and engineering sciences in the solution of a theoretical, experimental, and/or design problem. May be taken more than once for credit.

CENG 480a, Chemical Engineering Process Control Michael Loewenberg

Transient regime modeling and simulations of chemical processes. Conventional and state-space methods of analysis and control design. Applications of modern control methods in chemical engineering. Course work includes a design project. Prerequisite: ENAS 194 or permission of instructor. QR, SC RP

*** CENG 490a or b, Senior Research Project** Paul Van Tassel

Individual research and/or design project supervised by a faculty member in Chemical Engineering, or in a related field with permission of the director of undergraduate studies.

Chemistry (CHEM)

CHEM 134La, General Chemistry Laboratory I Jonathan Parr

An introduction to basic chemistry laboratory methods. Techniques required for quantitative analysis of thermodynamic processes and the properties of gases. To accompany or follow CHEM 161 or 163. May not be taken after a higher-numbered laboratory course. SC RP o Course cr

CHEM 136La, General Chemistry Laboratory II Staff

Introduction to rate and equilibrium measurements, acid-base chemistry, synthesis of inorganic compounds, and qualitative/quantitative analysis. After CHEM 134L or the equivalent in advanced placement. To accompany or follow CHEM 165 or 167. May not be taken after a higher-numbered laboratory course. SC RP o Course cr

*** CHEM 161a, General Chemistry I** Nilay Hazari

A comprehensive survey of modern descriptive, inorganic, and physical chemistry. Atomic theory, stoichiometry, thermochemistry, chemical periodicity, concepts in chemical bonding, and the shapes of molecules. Appropriate either as a first chemistry course or for students with one year of high school chemistry. Attendance at a weekly discussion section required. Normally accompanied by CHEM 134L. QR, SC RP

o Course cr

*** CHEM 163a, Advanced General Chemistry I** James Mayer

An in-depth examination of the principles of atomic, molecular, and solid state chemistry, including structures, periodicity, and chemical reactivity. Topics include the quantum mechanics of atoms and chemical bonding, and inorganic, organic, and solid state molecules and materials. For students with strong secondary school exposure to general chemistry. Attendance at a weekly discussion section required. Normally accompanied by CHEM 134L. Enrollment by placement only. QR, SC RP o Course cr

*** CHEM 165a, General Chemistry II** Paul Cooper

Topics include kinetics, chemical equilibrium, acid-base chemistry, free energy and entropy, electrochemistry, and nuclear chemistry. Attendance at a weekly discussion section required. Prerequisite: CHEM 161. Normally accompanied by CHEM 136L. Enrollment by placement only. QR, SC RP o Course cr

*** CHEM 174a, Organic Chemistry for First Year Students I** Seth Herzon

An introductory course focused on current theories of structure and mechanism in organic chemistry, their development, and their basis in experimental observation. Open to first-year students with excellent preparation in chemistry, mathematics, and physics who have taken the department's advanced chemistry placement examination. Attendance at a weekly discussion section required. Normally accompanied by CHEM 222L. Enrollment by placement only. SC RP o Course cr

CHEM 220a, Organic Chemistry Sarah Slavoff

An introductory course covering the fundamental principles of organic chemistry. The laboratory for this course is CHEM 222L. After college-level general chemistry. Students who have earned a grade lower than C in general chemistry are cautioned that they may not be sufficiently prepared for this course. Usually followed by CHEM 221 or 230. SC RP o Course cr

CHEM 222La, Laboratory for Organic Chemistry I Christine DiMeglio

First term of an introductory laboratory sequence covering basic synthetic and analytic techniques in organic chemistry. Prerequisite: CHEM 136L or equivalent. After or concurrently with CHEM 174 or 220. SC o Course cr

CHEM 226La, Intensive Advanced Chemistry Laboratory Christine DiMeglio

An intensive course in advanced chemistry laboratory technique intended to bring the student closer to independent research. Included are an independent laboratory project and presentation, introduction to library research, and training in the use of various analytical techniques. Offered subject to available laboratory space and sufficient enrollment. After CHEM 223L. Enrollment is limited; e-mail course instructor for enrollment procedure. WR, SC RP

CHEM 330La, Laboratory for Physical Chemistry I Paul Cooper

Introduction to the tools and techniques of modern experimental physical chemistry, including analog/digital electronics, quantitative measurements of basic thermodynamic properties, and nuclear magnetic resonance spectrometry. After or concurrently with CHEM 328 or 332. SC RP o Course cr

*** CHEM 332a, Physical Chemistry with Applications in the Physical Sciences I**

Tianyu Zhu

A comprehensive survey of modern physical and theoretical chemistry, including topics drawn from thermodynamics, chemical equilibrium, electrochemistry, and kinetics. Prerequisites: introductory physics, college-level general chemistry, and single-variable

calculus, or permission of instructor; MATH 120 or ENAS 151 suggested. May not be taken after CHEM 328. QR, SC RP o Course cr

*** CHEM 400a, Current Chemistry Seminar** Staff

Designed to engage students in the Chemistry research-seminar program by providing requisite scientific guidance and a forum for directed discussion. Participants explore current avenues of chemical research as presented orally by the prime movers in the field, thereby exploring the frontiers of current knowledge while still retaining the structured environment of a classroom. May fulfill all or part of the senior requirement for the Chemistry major, as detailed in the program description in the YCPS.

CHEM 402a, Fundamentals of Transition Metal Chemistry Patrick Holland

This half-term course covers the structures and properties of coordination compounds, and strategies for the design and analysis of new compounds. Elements of chelating ligands, spectroscopic methods, and magnetism are addressed. Prerequisites: Two terms of organic chemistry, and Chem 252 or equivalent. SC ½ Course cr

CHEM 408a, Principles of Materials Chemistry Hailiang Wang

This course is an advanced introduction to materials chemistry. It aims to serve senior undergraduate students who are interested in learning and applying chemical principles for materials research and applications. Fundamental principles in solid-state chemistry, including crystal structures and chemical interactions, will be taught. Ionics, metal, semiconductor and polymer materials, including their synthesis, structures, properties and applications, will be discussed. Prerequisite: General chemistry, inorganic chemistry and physical chemistry, or equivalent experience. SC ½ Course cr

CHEM 416a, Organic Structure and Energetics William Jorgensen

The course covers concepts in physical organic chemistry including molecular structure & bonding, conformational energetics, electronic effects, thermochemistry, ring strain, non-covalent interactions, molecular recognition, and host-guest chemistry. Prerequisites: Two terms of organic chemistry and two terms of physical chemistry or related courses or permission of the instructor. SC ½ Course cr

CHEM 417a, Kinetics and Thermodynamics in Organic Systems William Jorgensen

The course generally follows Organic Structure and Energetics. This module covers concepts in physical organic chemistry including acid-base chemistry, advanced issues in stereochemistry, kinetics and thermodynamics, as well as experiments and techniques employed in mechanistic analysis. Issues in catalysis are addressed throughout. Prerequisites: CHEM 416 and two terms of introductory organic chemistry, and two terms of physical chemistry. Permission of the instructor may be sought for potential exceptions. SC ½ Course cr

CHEM 419a, Foundations of Chemical Biology Jason Crawford

Chemical biology is a rapidly developing field at the interface of chemical and biological sciences. This subject deals with how chemistry can be applied to manipulate and study biological problems using a combination of experimental techniques ranging from organic chemistry, analytical chemistry, biochemistry, molecular biology, biophysical chemistry and cell biology. The purpose of this course is to teach students the core skills that are used by scientists at the interface of chemistry and biology. The course transitions into Chemical Biology II, where students learn more about therapeutic applications of chemical biology. Prerequisites: Two terms of both general chemistry and organic chemistry. SC ½ Course cr

CHEM 432a, Synthetic Methods in Organic Chemistry I Jon Ellman

Compound synthesis is essential to the discovery and development of new chemical entities with a desired property whether that be for fundamental study or for a more applied goal such as a new pharmaceutical, agrochemical, or material. In this course we emphasize key transformations and principles to provide a framework for the efficient design and synthesis of organic compounds. Prerequisites: Two terms of organic chemistry and one term of introductory inorganic chemistry, or related course, or permission of the instructor. SC ½ Course cr

CHEM 433a, Synthetic Methods in Organic Chemistry II Timothy Newhouse

Compound synthesis is essential to the discovery and development of new chemical entities with a desired property whether that be for fundamental study or for a more applied goal such as a new pharmaceutical, agrochemical, or material. In this course we emphasize key transformations and principles to provide a framework for the efficient design and synthesis of organic compounds. This course builds on the knowledge learned in CHEM 432. Prerequisite: CHEM 432 or permission of instructor. SC ½ Course cr

CHEM 466a, Introduction to Quantum Mechanics 1 Sharon Hammes-Schiffer

A half-term introduction to quantum mechanics, starting with the Schrödinger equation and covering model systems such as particle-in-a-box and harmonic oscillator. The fundamental postulates and theorems of quantum mechanics are also covered. Prerequisite: Physical chemistry, multivariable calculus or equivalent experience, or permission of instructor. SC ½ Course cr

CHEM 467a, Introduction to Quantum Mechanics 2 Sharon Hammes-Schiffer

Continuation of an introduction to quantum mechanics, starting with angular momentum and the hydrogen atom, and then covering approximate methods such as the variation method and perturbation theory. The concepts of electron spin as well as Hartree-Fock theory and other electronic structure methods for describing molecules are covered. Half-term course. Prerequisite: CHEM 467, or multivariable calculus or equivalent experience. SC ½ Course cr

*** CHEM 472a, Introduction to Statistical Mechanics 1** Victor Batista

A half-term introduction to modern statistical mechanics, starting with fundamental concepts on quantum statistical mechanics to establish a microscopic derivation of statistical thermodynamics. Topics include ensembles, Fermi, Bose and Boltzmann statistics, density matrices, mean field theories, phase transitions, chemical reaction dynamics, time-correlation functions, Monte Carlo simulations and Molecular Dynamics simulations. Prerequisites: Physical chemistry, multivariable calculus or equivalent experience. SC ½ Course cr

*** CHEM 473a, Introduction to Statistical Mechanics 2** Victor Batista

A half-term continuation of the introduction to modern statistical mechanics, with focus on quantum statistical mechanics of liquids, Monte Carlo methods and linear response theory (Chapters 6-8 of the textbook). Classical results are obtained according to the classical limit of the quantum mechanical description. Topics include the Monte Carlo simulations and Molecular Dynamics simulations for the description of the Ising model, fluids, solvation of solutes, alchemist free energy calculations, kinetics and transport properties. Prerequisites: Physical chemistry, multivariable calculus or equivalent experience. SC ½ Course cr

* **CHEM 480a, Introduction to Independent Research in Chemistry** Patrick Vaccaro
 After consultation with the DUS, students engage individual experimental and/or theoretical research problems in the laboratories of a selected faculty member within the Chemistry department. At the end of the term, students submit a brief report summarizing goals, methods, and accomplishments. For each term of enrollment, students must complete the CHEM 480 registration form, available in the DUS office, and have it signed by their faculty research mentor. It must be submitted to the Chemistry DUS for final approval no later than the last week of classes in the immediately preceding academic term. Individuals wishing to perform independent research must have demonstrated proficiency in the aspects of chemistry required for the planned project, as ascertained by the supervising faculty member, and must meet basic safety requirements prior to undertaking any activities, including certified completion of the online courses entitled *Laboratory Chemical Training* and *Hazardous Chemical Waste Training* administered by the Office of Environmental Health and Safety (EHS) at <http://ehs.yale.edu/training>. At least ten hours per week of research are required (including time spent on requisite safety training), with the faculty mentor affirming this level of student commitment by midterm. This course may be taken multiple times for Pass/Fail credit, subject to restrictions imposed by Yale College. RP

* **CHEM 490a, Independent Research in Chemistry** Jonathan Parr
 Senior Chemistry majors engage individual experimental and/or theoretical research problems in the laboratories of a selected faculty member in the Chemistry department or in a closely related field of molecular science. CHEM 490 registration forms, found in the DUS office, must be signed by the student's faculty research mentor and submitted it to the Chemistry DUS for final approval no later than the last week of classes in the immediately preceding academic term. Mandatory class meetings address issues of essential laboratory safety and ethics in science, with other class sessions focusing on core topics of broad interest to Chemistry students, including online literary research, oral presentation skills, and effective scientific writing. At least ten hours of research are required per week. Students are assigned letter grades, subject to restrictions imposed by Yale College. In special cases and with DUS approval, juniors may take this course. RP

Child Study (CHLD)

* **CHLD 125a / EDST 125a / PSYC 125a, Child Development** Ann Close and Carla Horwitz

This course is **first in a sequence** including Theory and Practice of Early Childhood Education (CHLD127/PSYCH 127/EDST 127) and Language Literacy and Play (CHLD 128/PSYCH 128/EDST 128). This course provides students a theoretical base in child development and behavior and tools to sensitively and carefully observe infants and young children. The seminar will consider aspects of cognitive, social, and emotional development. An assumption of this course is that it is not possible to understand children – their behavior and development – without understanding their families and culture and the relationships between children and parents. The course will give an overview of the major theories in the field, focusing on the complex interaction between the developing self and the environment, exploring current research and theory as well as practice. Students will have the opportunity to see how programs for young children use psychodynamic and interactional theories to inform the development of

their philosophy and curriculum. Weekly Observations:-Total Time Commitment 3 hours per week. Students will do two separate weekly observations over the course of the semester. They will observe in a group setting for 2 hours each each week at a Yale affiliated child care center. Students will also arrange to do a weekly 1 hour observation (either in person or virtually) of a child under the age of 6. Students must make their own arrangements for these individual observations. If it is not possible to arrange a child to observe, please do not apply to take this course. For a portion of class meetings, the class will divide into small supervisory discussion groups. Priority given to juniors, seniors, Ed Study students. WR, SO

*** CHLD 228a / EDST 228a / PSYC 305a, Contemporary Topics in Social and Emotional Learning** Christina Cipriano

While our nation's youth are increasingly more anxious and disconnected than ever before, social and emotional learning, or SEL, is being politicized by arguments without empirical evidence. The reality is that due in part to its interdisciplinary origins, and in part to its quick uptake, what SEL is, why it matters, and who it benefits, has garnered significant attention since its inception. Key questions and discourse over the past three decades include if SEL skills are: another name for personality, soft skills, 21st century skills, or emotional intelligence, are SEL skills stand-alone or do they need to be taught together and in sequence, for how long does the intervention need to last to be effective, how do you assess SEL, are SEL skills culturally responsive and universally applicable, and can SEL promote the conditions for education equity? In this seminar, students unpack these key questions and challenge and evolve the current discourse through seminal and contemporary readings, writing, and artifact analyses. Students are provided with the opportunity to engage critically with the largest data set amassed to date of the contemporary evidence for SEL. Prerequisite: CHLD 125, or PSYC 125, or EDST 125.

Chinese (CHNS)

*** CHNS 110a, Elementary Modern Chinese I** Staff

Intended for students with no background in Chinese. An intensive course with emphasis on spoken language and drills. Pronunciation, grammatical analysis, conversation practice, and introduction to reading and writing Chinese characters. L1 RP 1½ Course cr

CHNS 112a, Elementary Modern Chinese for Heritage Speakers Staff

First level of the advanced learner sequence. Intended for students with some aural proficiency but very limited ability in reading and writing Chinese. Training in listening and speaking, with emphasis on reading and writing. Placement confirmed by placement test and by instructor. L1 1½ Course cr

*** CHNS 120b, Elementary Modern Chinese II** Staff

Continuation of CHNS 110. After CHNS 110 or equivalent. L2 RP 1½ Course cr

CHNS 122b, Elementary Modern Chinese for Heritage Speakers Staff

Continuation of CHNS 112. L2 1½ Course cr

*** CHNS 130a, Intermediate Modern Chinese I** Staff

An intermediate course that continues intensive training in listening, speaking, reading, and writing and consolidates achievements from the first year of study. Students

improve oral fluency, study more complex grammatical structures, and enlarge both reading and writing vocabulary. After CHNS 120 or equivalent. L3 RP 1½ Course cr

*** CHNS 132a, Intermediate Modern Chinese for Heritage Speakers** Staff

The second level of the advanced learner sequence. Intended for students with intermediate oral proficiency and elementary reading and writing proficiency. Students receive intensive training in listening, speaking, reading, and writing, supplemented by audio and video materials. The objective of the course is to balance these four skills and work toward attaining an advanced level in all of them. Prerequisite: CHNS 122b or equivalent. L3 RP 1½ Course cr

*** CHNS 140b, Intermediate Modern Chinese II** Staff

Continuation of CHNS 130. To be followed by CHNS 150. After CHNS 130 or equivalent. L4 RP 1½ Course cr

*** CHNS 142b, Intermediate Modern Chinese for Heritage Speakers** Staff

Continuation of CHNS 132. After CHNS 132 or equivalent. L4 1½ Course cr

*** CHNS 150a, Advanced Modern Chinese I** Staff

Third level of the standard foundational sequence of modern Chinese, with study in speaking, listening, reading, and writing. Use of audiovisual materials, oral presentations, skits, and longer and more frequent writing assignments to assimilate more sophisticated grammatical structures. Further introduction to a wide variety of written forms and styles. Use of both traditional and simplified forms of Chinese characters. After CHNS 140 or equivalent. L5

*** CHNS 151b, Advanced Modern Chinese II** Staff

Continuation of CHNS 150. After CHNS 150 or equivalent. L5

*** CHNS 152a and CHNS 153b, Advanced Modern Chinese for Heritage Speakers**
Staff

This course is intended for heritage speakers with intermediate high to advanced low speaking and listening skills and with intermediate reading and writing skills. The class follows CHNS 142 in the heritage track. The goal of the course is to help students effectively expand their skills in reading and writing while concurrently addressing the need to improve their listening and oral skills in formal environments. The materials cover a variety of topics relating to Chinese culture, society, and cultural differences, supplemented with authentic video materials. Prerequisite: CHNS 142 or equivalent. L5

*** CHNS 156a and CHNS 157b, Advanced Modern Chinese through Film for Heritage Speakers** Ninghui Liang

This course is designed to consolidate students' grasp of the language through the use of films, TV programs, videos on social media, and authentic written materials. Activities include presentations, group discussions, written assignments, and projects. Open to heritage learners with intermediate to advanced oral proficiency and intermediate-low reading and writing proficiency. After CHNS 142, or equivalent. L5

*** CHNS 158a, Advanced Chinese III through Films and Stories** Yongtao Zhang

Fourth level of the standard foundational sequence of modern Chinese, with study in speaking, listening, reading, and writing. Readings in a wide range of subjects form the basis of discussion and other activities. Students consolidate their skills, especially

speaking proficiency, at an advanced level. Materials use both simplified and traditional characters. (Previously CHNS 154.) After CHNS 151 or equivalent. L5

* **CHNS 159b, Advanced Chinese IV through Films and Stories** Staff

Continuation of CHNS 158. (Previously CHNS 155.) After CHNS 158 or equivalent. L5

* **CHNS 162a and CHNS 163b, Advanced Chinese through History, Culture, and Arts**
Rongzhen Li

This course is intended for both heritage and non heritage learners with advanced proficiency. Students develop sophisticated language skills through working with authentic written materials, images, and videos concerning historical events, historical figures, artists, writers, and philosophers. Activities include working with translation tools, discussions, debates, presentations, oral and written exercises on platforms such as Playposit and Perusall, and collaborative projects. After CHNS 153, or 157, or 159, or equivalent. L5

* **CHNS 164a, Chinese for Reading Contemporary Fiction** Wei Su

Selected readings in Chinese fiction of the 1980s and 1990s for the purpose of developing advanced language skills in reading, speaking, and writing. After CHNS 153, or 157, or 159, or equivalent. L5

* **CHNS 165b, Readings in Modern Chinese Fiction** Wei Su

We read and discuss modern short stories, most written prior to 1949, for the purpose of developing advanced language skills in reading, speaking, and writing. After CHNS 153, or 157, or 159, or equivalent. L5

* **CHNS 166a and CHNS 167b, Chinese for Current Affairs** Staff

Advanced language course with a focus on speaking and writing in formal styles. Current affairs are used as a vehicle to help students learn advanced vocabulary, idiomatic expressions, complex sentence structures, news writing styles and formal stylistic register. Materials include texts and videos selected from news media worldwide to improve students' language proficiency for sophisticated communications on a wide range of topics. After CHNS 153, 157, or 159. L5

* **CHNS 168a and CHNS 169b, Chinese for Global Enterprises** Min Chen

Advanced language course that familiarizes students with Chinese business terminology and discourse through discussion of China's economic and management reforms, marketing, economic laws, business culture and customs, and economic relations with other countries. Case studies from international enterprises that have successfully entered the Chinese market. Prerequisite: After CHNS 153, or CHNS 157, or CHNS 159, or equivalent. L5

CHNS 170a, Introduction to Literary Chinese I Pauline Lin

Reading and interpretation of texts in various styles of literary Chinese (*wenyan*), with attention to basic problems of syntax and literary style. Course conducted in English. After CHNS 151, 153, 157, or equivalent. L5

CHNS 171b, Introduction to Literary Chinese II Pauline Lin

Continuation of CHNS 170. After CHNS 170. L5

* **CHNS 172a, Chinese for Scholarly Conversation** Jianhua Shen

This course aims to prepare students for the language requirements of advanced research or employment in a variety of China-related fields. Materials include readings on contemporary social, cultural, and political issues, which are written by prominent

scholars in related fields. This level is suitable for students who have had four years of college Chinese or who have taken three years of an accelerated program for heritage speakers. After CHNS 153, 159, 157, or equivalent, or permission of the instructor. L5

CHNS 200a / EALL 200a / EAST 240a / HUMS 270a, The Chinese Tradition Staff
An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU TR o Course cr

Classical Civilization (CLCV)

* **CLCV 051a / HUMS 061a / LITR 029a / MUSI 054a / THST 051a, Performing Antiquity** Pauline LeVen

This seminar introduces students to some of the most influential texts of Greco-Roman Antiquity and investigates the meaning of their “performance” in different ways: 1) how they were musically and dramatically performed in their original context in Antiquity (what were the rhythms, the harmonies, the dance-steps, the props used, etc.); 2) what the performance meant, in socio-cultural and political terms, for the people involved in performing or watching it, and how performance takes place beyond the stage; 3) how these texts are performed in modern times (what it means for us to translate and stage ancient plays with masks, a chorus, etc.; to reenact some ancient institutions; to reconstruct ancient instruments or compose “new ancient music”); 4) in what ways modern poems, plays, songs, ballets constitute forms of interpretation, appropriation, or contestation of ancient texts; 5) in what ways creative and embodied practice can be a form of scholarship. Besides reading ancient Greek and Latin texts in translation, students read and watch performances of modern works of reception: poems, drama, ballet, and instrumental music. A few sessions are devoted to practical activities (reenactment of a symposium, composition of ancient music, etc.). Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

CLCV 125a / PHIL 125a, Introduction to Ancient Philosophy Staff
An introduction to ancient philosophy, beginning with the earliest pre-Socratics, concentrating on Plato and Aristotle, and including a brief foray into Hellenistic philosophy. Intended to be taken in conjunction with PHIL 126. WR, HU o Course cr

CLCV 160a / ARCG 243a / HSAR 243a, Greek Art and Architecture Milette Gaifman
Monuments of Greek art and architecture from the late Geometric period (c. 760 B.C.) to Alexander the Great (c. 323 B.C.). Emphasis on social and historical contexts. HU

CLCV 200b / GLBL 204b / HIST 204b, Global Leadership, 600 BCE–600 CE Staff
This course provides students with an accessible and engaging introduction to both the classical world and the problems of political organization and leadership through time and across societies. Students learn to think comparatively between individuals, societies, and systems and to analyze different ideals of leadership. This means considering not only traditional masculine and military conceptions of rule but also the leadership roles and styles of women, slaves, and rebels. We hope to bring into view,

in other words, the intersectional challenges to power faced by non-traditional leaders in a world dominated by gender, class, and cultural prejudices, and to show how non-traditional leaders confronted and overcame these. Students draw upon this experience to access the premodern world as an alternative but related historical reality which can productively inform their engagement with the present. HU o Course cr

CLCV 204b / HIST 300b, Alexander the Great and the Hellenistic World Staff

The history and culture of the ancient world between the rise of Macedonian imperialism in the fourth century B.C.E. and the annexation of Egypt by Augustus in 30 B.C.E. Particular attention to Alexander, one of the most important figures in world history, and to the definition of "Hellenism." HU o Course cr

CLCV 205a / HIST 205a, Introduction to Ancient Greek History Staff

Introduction to Greek history, tracing the development of Greek civilization as manifested in the political, military, intellectual, and creative achievements from the Bronze Age through the end of the Classical period. Students read original sources in translation as well as secondary scholarship to better understand the rise and fall of the ancient Greeks—the civilization at the very heart of Western Civilization. HU o Course cr

CLCV 206a / HIST 217a / HUMS 144a, The Roman Republic Staff

The origins, development, and expansion of Rome from the earliest times to the deaths of Caesar and Cicero. Cultural identity and interaction; slavery, class, and the family; politics, rhetoric, and propaganda; religion; imperialism; monumentality and memory; and the perception and writing of history. Application of literary and archaeological evidence. HU o Course cr

CLCV 207b / HIST 218b, The Roman Empire Staff

The history of the Roman Empire from its establishment by Augustus to the reign of Justinian. Attention to social, intellectual, and religious changes, as well as to the framework of historical events within which these changes took place, and to the processes by which the Roman Empire was replaced by the institutions of the Western Middle Ages and the Byzantine Empire. HU o Course cr

* **CLCV 216a / LITR 239a / MGRK 216a / WGSS 209a, Dionysus in Modernity**

George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU TR

CLCV 219a / HIST 311a / NELC 111a, Egypt of the Pharaohs Staff

Egypt was among the first centralized territorial states in the world, and, because Egyptian history offers us 4000 years of institutional development and change, the focus of this course is on the long-term development of the ancient Egyptian state, its institutions, and its culture. The course introduces students to the history and culture of ancient Egypt from the rise of the central state to the early Christian period. General historical trends, the relationship of Egyptian history to other contemporary ancient cultures, and the legacy of Egypt to the "West" are also considered. At the end of the course, students have an understanding of the material culture and the historical

development of ancient Egypt, and an appreciation for the relationship of the ancient sources to the construction of ancient Egyptian history. HU o Course cr

CLCV 223a / HIST 212a, The Ancient Economy Staff

A survey of the economies of the ancient Mediterranean world, with emphasis on economic institutions, the development of the economies over time, ancient economic thought, and the interrelationships between institutions and economic growth.

Material evidence for studying the economies of the ancient world, including coinage, documentary material, and archaeology. HU o Course cr

CLCV 236a / HIST 225a, Roman Law Staff

Basic principles of Roman law and their applications to the social and economic history of antiquity and to the broader history of international law. Topics include the history of persons and things, inheritance, crime and tort, and legal procedure. Questions of social and economic history and the history of jurisprudence from the fifth century B.C.E. to the present. HU o Course cr

*** CLCV 319b / HIST 242Jb / MGRK 300b / WGSS 293b, The Olympic Games, Ancient and Modern** George Syrimis

Introduction to the history of the Olympic Games from antiquity to the present. The mythology of athletic events in ancient Greece and the ritual, political, and social ramifications of the actual competitions. The revival of the modern Olympic movement in 1896, the political investment of the Greek state at the time, and specific games as they illustrate the convergence of athletic cultures and sociopolitical transformations in the twentieth century. HU

*** CLCV 345a / HUMS 145a, Ancient Greek and Roman Novels in Context** Staff

A thorough examination of ancient novels as ancestors to the modern novel. Focus on seven surviving Greek and Roman novels, with particular emphasis on questions of interpretation, literary criticism, and literary theory, as well as cultural issues raised by the novels, including questions of gender and sexuality, ethnicity, cultural identity, religion, and intellectual culture of the first centuries A.D. WR, HU

*** CLCV 377a / HUMS 177a / PLSC 306a, Tragedy and Politics** Daniel Schillinger

The canonical Greek tragedians—Aeschylus, Sophocles, and Euripides—dramatize fundamental and discomfiting questions that are often sidelined by the philosophical tradition. In this seminar, we read plays about death, war, revenge, madness, impossible choices, calamitous errors, and the destruction of whole peoples. Aeschylus, Sophocles, and Euripides were also piercing observers of political life. No less than Plato and Aristotle, the Attic tragedians write to elicit reflection on the basic patterns of politics: democracy and tyranny, war and peace, the family and the city, the rule of law and violence. Finally, we also approach Greek tragedy through its reception. Aristophanes, Plato, Aristotle, and Nietzsche: all these thinkers responded to tragedy. Texts include Aeschylus, *Oresteia*; Aristophanes, *Frogs* and *Lysistrata*; Euripides, *Bacchae*, *Heracles*, and *Trojan Women*; Nietzsche, *The Birth of Tragedy*; Plato, *Symposium*; and Sophocles, *Antigone*, *Philoctetes*, and *Oedipus Tyrannus*. Previous work in political theory, classics, or philosophy is recommended. HU

*** CLCV 498a, Senior Tutorial in Classical Civilization** Andrew Johnston

Tutorial for seniors in Classical Civilization. As a culminating experience in the major, the student completes under the supervision of a faculty member an original research project, intensive language and literature study, or a creative endeavor. To

register, the student must submit a written plan of study for approval by the director of undergraduate studies and the faculty instructor. Fulfills the senior requirement for the B.A. degree. Enrollment limited to senior students majoring in Classical Civilization.

Classics (CLSS)

CLSS 498a, Senior Tutorial in Classics Andrew Johnston

Tutorial for seniors in Classics. As a culminating experience in the major, the student completes under the supervision of a faculty member an original research project, intensive language and literature study, or a creative endeavor. To register, the student must submit a written plan of study for approval by the director of undergraduate studies and the faculty instructor. Fulfills the senior requirement for the B.A. degree. Enrollment limited to senior students majoring in Classics.

Cognitive Science (CGSC)

CGSC 110a / PSYC 130a, Introduction to Cognitive Science Staff

An introduction to the interdisciplinary study of how the mind works. Discussion of tools, theories, and assumptions from psychology, computer science, neuroscience, linguistics, and philosophy. so

CGSC 175a, The Mystery of Sleep Meir Kryger

The role in which sleep and circadian rhythms affect attention, cognition, and memory through multidisciplinary consideration of neurobiology, epidemiology, and humanities. Psychological aspects of sleep; sleep disorders; sleep deprivation; and the history of sleep in philosophy, literature, and art. This course is not open to students previously enrolled in CSPC 350, CSMC 370, or CSYC 390. sc

CGSC 186b / PHIL 113b / RLST 186b / SAST 270b, Fear, Suffering, Anger, Love: Buddhist Philosophy of Mind Sonam Kachru

This course introduces students to classical Indian Buddhist philosophy of mind and the reasons why Buddhists pursued it – "the reinvention of ourselves," or the pursuit of the transformation of persons from unhealthy to healthy ways of being minded. Class materials are drawn from categories and concerns found in theoretical and practical manuals from roughly the first to the fifth centuries C.E., but the topics are salient, including: What is the difference between mind and consciousness? Is there an unconscious? How does one model mental actions, such as attention or categorization? Are our minds structured by primal fear? Or anger? Do we ever have reason to be angry? What is cognitive control? Why do minds wander? Should mental dynamics be merely observed or attenuated or sculpted in some other way? What, if anything, is peace of mind? HU

CGSC 274a / NSCI 361a / PSYC 261a, Algorithms of the Mind Ilker Yildirim

This course introduces computational theories of psychological processes, with a pedagogical focus on perception and high-level cognition. Each week students learn about new computational methods grounded in neurocognitive phenomena. Lectures introduce these topics conceptually; lab sections provide hands-on instruction with programming assignments and review of mathematical concepts. Lectures cover a range of computational methods sampling across the fields of computational statistics, artificial intelligence and machine learning, including probabilistic programming, neural networks, and differentiable programming. Students must have a programming

background, ideally in a high-level programming language such as Python, Julia or Matlab. Students must also have college-level calculus. The course will substantially use Julia and Python. QR, SC, SO o Course cr

CGSC 276a / PHIL 276a, Metaphysics Staff

Examination of some fundamental aspects of reality. Topics include time, persistence, modality, causation, and existence. HU o Course cr

CGSC 277b / AFAM 198b / EDST 177b / EP&E 494b / PHIL 177b, Propaganda, Ideology, and Democracy Jason Stanley

Historical, philosophical, psychological, and linguistic introduction to the issues and challenges that propaganda raises for liberal democracy. How propaganda can work to undermine democracy; ways in which schools and the press are implicated; the use of propaganda by social movements to address democracy's deficiencies; the legitimacy of propaganda in cases of political crisis. HU o Course cr

CGSC 282a / PHIL 182a / PSYC 182a, Perspectives on Human Nature Staff

Comparison of philosophical and psychological perspectives on human nature. Nietzsche on morality, paired with contemporary work on the psychology of moral judgment; Marx on religion, paired with systematic research on the science of religious belief; Schopenhauer paired with social psychology on happiness. HU o Course cr

CGSC 315a / PSYC 315a, The Modern Unconscious John Bargh

The notion of the unconscious mind traced from the early 1800s through Freud to present-day cognitive science, with a focus on the past thirty years. The power and function of the unconscious as a pervasive part of normal everyday human functioning. Readings from philosophy of mind and evolutionary biology. SO

* **CGSC 395a / PHIL 395a, Junior Colloquium in Cognitive Science** Isaac Davis

Survey of contemporary issues and current research in cognitive science. By the end of the term, students select a research topic for the senior essay. Enrollment limited to Cognitive Science majors. ½ Course cr

* **CGSC 426b / EP&E 490b / PHIL 426b / PSYC 422b, The Cognitive Science of Morality** Joshua Knobe

Introduction to the emerging field of moral cognition. Focus on questions about the philosophical significance of psychological findings. Topics include the role of emotion in moral judgment; the significance of character traits in virtue ethics and personality psychology; the reliability of intuitions and the psychological processes that underlie them. HU

* **CGSC 471a, Directed Research in Cognitive Science** Joshua Knobe

Research projects for qualified students. The student must be supervised by a member of the Cognitive Science faculty, who sets the requirements and directs the research. To register, a student must submit a written plan of study to the director of undergraduate studies and the faculty supervisor. The normal minimum requirement is a written report of the completed research, but individual faculty members may set alternative equivalent requirements. Only one term may be offered toward the major, with permission of the director of undergraduate studies; two terms may be offered toward the bachelor's degree.

* **CGSC 473a, Directed Reading in Cognitive Science** Joshua Knobe

Individual study for qualified students who wish to investigate an area of cognitive science not covered in regular courses. The student must be supervised by a member of the Cognitive Science faculty, who sets the requirements and meets regularly with the student. To register, a student must submit a written plan of study to the director of undergraduate studies and the faculty supervisor. The normal minimum requirement is a term paper, but individual faculty members may set alternative equivalent requirements. Only one term may be offered toward the major, with permission of the director of undergraduate studies; two terms may be offered toward the bachelor's degree.

Comparative Literature (LITR)

* **LITR 020a / FREN 012a, World Literature After Empire** Jill Jarvis

An introduction to contemporary French fiction in a global perspective that will transform the way you think about the relationship between literature and politics. Together we read prizewinning novels by writers of the former French Empire – in Africa, the Middle East, Southeast Asia, and the Caribbean – alongside key manifestos and theoretical essays that define or defy the notion of world literature. Keeping our focus on questions of race, gender, imperialism, and translation, we ask: has literature gone global? What does that mean? What can we learn from writers whose texts cross and confound linguistic and national borders? Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. No previous knowledge of French is required. WR, HU

* **LITR 029a / CLCV 051a / HUMS 061a / MUSI 054a / THST 051a, Performing Antiquity** Pauline LeVen

This seminar introduces students to some of the most influential texts of Greco-Roman Antiquity and investigates the meaning of their “performance” in different ways: 1) how they were musically and dramatically performed in their original context in Antiquity (what were the rhythms, the harmonies, the dance-steps, the props used, etc.); 2) what the performance meant, in socio-cultural and political terms, for the people involved in performing or watching it, and how performance takes place beyond the stage; 3) how these texts are performed in modern times (what it means for us to translate and stage ancient plays with masks, a chorus, etc.; to reenact some ancient institutions; to reconstruct ancient instruments or compose “new ancient music”); 4) in what ways modern poems, plays, songs, ballets constitute forms of interpretation, appropriation, or contestation of ancient texts; 5) in what ways creative and embodied practice can be a form of scholarship. Besides reading ancient Greek and Latin texts in translation, students read and watch performances of modern works of reception: poems, drama, ballet, and instrumental music. A few sessions are devoted to practical activities (reenactment of a symposium, composition of ancient music, etc.). Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **LITR 037a / HUMS 037a, The Limits of the Human** Steven Shoemaker

As we navigate the demands of the 21st century, an onslaught of new technologies, from artificial intelligence to genetic engineering, has pushed us to question the boundaries between the human and the nonhuman. At the same time, scientific findings about animal, and even plant intelligence, have troubled these boundaries in similar fashion.

In this course, we examine works of literature and film that can help us imagine our way into these “limit cases” and explore what happens as we approach the limits of our own imaginative and empathetic capacities. We read works of literature by Mary Shelley, Kazuo Ishiguro, Richard Powers, Octavia Butler, Ted Chiang, and Jennifer Egan, and watch the movies *Blade Runner*, *Ex Machina*, *Arrival*, *Avatar*, and *Her*. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **LITR 130a / GMAN 200a / HUMS 130a, How to Read** Rudiger Campe and Hannan Hever

Introduction to techniques, strategies, and practices of reading through study of lyric poems, narrative texts, plays and performances, films, new and old, from a range of times and places. Emphasis on practical strategies of discerning and making meaning, as well as theories of literature, and contextualizing particular readings. Topics include form and genre, literary voice and the book as a material object, evaluating translations, and how literary strategies can be extended to read film, mass media, and popular culture. Junior seminar; preference given to juniors and majors. HU

* **LITR 140b, How To Compare** Samuel Hodgkin

This course is an exploration of literary comparison from methodological as well as historical perspectives. We compare texts within genres, across genres and media, across periods, and between cultures and languages. We consider questions such as whether all comparisons must assume a common ground, and whether there is always an implicit politics to any comparison. Topics range from theories of translation and ekphrasis to exoticism and untranslatability. Readings include classics by critics such as Aristotle, Ibn Sina, and Kristeva, and writers such as Marie de France, Nezami, and Calvino. It also engages with the literature of our own moment: we will read a newly-translated novel by the Chilean writer Nona Fernández, and the Iranian poet Kayvan Tahmasebian will visit the class for a conversation. We will also discuss films (*Parajanov* and *Barta*) and a new Russian computer game. This course fulfills an introductory requirement for students considering one of the majors in the Comparative Literature department, but all are welcome, and the methodologies and questions discussed in the class are useful for any kind of humanistic inquiry. HU

* **LITR 154a / ENGL 395a / HUMS 380a, The Bible as a Literature** Leslie Brisman

Study of the Bible as a literature—a collection of works exhibiting a variety of attitudes toward the conflicting claims of tradition and originality, historicity and literariness.

WR, HU RP

* **LITR 161a / HUMS 394a, Imagining Global Lyric** Ayesha Ramachandran

What is lyric? And what might a multi-dimensional, expansive study of the lyric across cultures, languages, and media look like? This course investigates the possibility of studying lyric poetry in cross-cultural and transmedial ways by combining traditional humanistic approaches with new methods opened by the digital humanities. We begin by examining the lyric poem’s privileged position within a Western literary canon and exploring other conceptions of “lyric” in non-Western literary traditions. We then take an anthropological approach and trace the pervasiveness of lyric poetry in the world by focusing on four key questions: (a) what is lyric and how is it related to various literary genres? (b) what is the relationship between lyric and the visual image; (c) can lyric be translated across forms and languages? (d) how does lyric uniquely articulate our relationship to the natural world? Participants engage with primary texts in Yale’s

special collections and contribute to a digital project to compile an exhibit of lyric poetry across the world—a project that highlights the importance and challenges of defining just what a lyric poem is. This is a Franke Seminar in the Humanities. HU
TR

*** LITR 168a or b / ENGL 129a or b / HUMS 127a or b / THST 129a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** LITR 169a or b / ENGL 130a or b, Epic in the European Literary Tradition** Staff

The epic tradition traced from its foundations in ancient Greece and Rome to the modern novel. The creation of cultural values and identities; exile and homecoming; the heroic in times of war and of peace; the role of the individual within society; memory and history; politics of gender, race, and religion. Works include Homer's *Odyssey*, Vergil's *Aeneid*, Dante's *Inferno*, Cervantes's *Don Quixote*, and Joyce's *Ulysses*. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

LITR 183a / HUMS 180a / ITAL 310a, Dante in Translation Staff

A critical reading of Dante's *Divine Comedy* and selections from the minor works, with an attempt to place Dante's work in the intellectual and social context of the late Middle Ages by relating literature to philosophical, theological, and political concerns. No knowledge of Italian required. Course conducted in English. HU TR o Course cr

LITR 194a / ENGL 154a / FREN 216a / HUMS 134a, The Multicultural Middle Ages Staff

Introduction to medieval English literature and culture in its European and Mediterranean context, before it became monolingual, canonical, or author-bound. Genres include travel writing, epic, dream visions, mysticism, the lyric, and autobiography, from the Crusades to the Hundred Years War, from the troubadours to Dante, from the *Chanson de Roland* to Chaucer. Formerly ENGL 189. WR, HU
o Course cr

*** LITR 195a / ENGL 205a / HUMS 200a / MUSI 462a, Medieval Songlines** Ardis Butterfield

Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

*** LITR 200a / HUMS 128a / NELC 128a, From Gilgamesh to Persepolis: Introduction to Near Eastern Literatures** Samuel Hodgkin

This course is an introduction to Near Eastern civilization through its rich and diverse literary cultures. We read and discuss ancient works, such as the *Epic of Gilgamesh*, *Genesis*, and “The Song of Songs,” medieval works, such as *A Thousand and One Nights*, selections from the *Qur'an*, and *Shah-nama: The Book of Kings*, and

modern works of Israeli, Turkish, and Iranian novelists and Palestinian poets. Students complement classroom studies with visits to the Yale Babylonian Collection and the Beinecke Rare Book and Manuscript Library, as well as with film screenings and guest speakers. Students also learn fundamentals of Near Eastern writing systems, and consider questions of tradition, transmission, and translation. All readings are in translation. Permission from the instructor required. WR, HU

* **LITR 204b / ENGL 269b / HUMS 262b, Modernism and Domesticity** Katie Trumpener

Exploration of turn-of-the-century European attempts to craft modernist lives: how new ideas of women's roles, childhood, and the family shaped modernist literature and art—even as modernist designers tried to change people's experience of daily surroundings. Topics include a range of New Woman novels, modernist design, fashion, and stage sets, exemplary artists' houses (Carl and Karen Larson, Vanessa and Duncan Grant), reform fashions, portraits and family portraits, experimental fiction, memoirs (Andrej Bely, Walter Benjamin, Joyce, Woolf), and children's books as designs for living. Students will have the opportunity to research in modernist periodicals or contribute to the upcoming Beinecke Text/Textile exhibit. WR, HU

* **LITR 205a / RSEE 257a / RUSS 267a, Memory and Memoir in Russian Culture** Jinyi Chu

How do we remember and forget? How does memory transform into narrative? Why do we read and write memoirs and autobiography? What can they tell us about the past? How do we analyze the roles of the narrator, the author, and the protagonist? How should we understand the ideological tensions between official historiography and personal reminiscences, especially in 20th-century Russia? This course aims to answer these questions through close readings of a few cultural celebrities' memoirs and autobiographical writings that are also widely acknowledged as the best representatives of 20th-century Russian prose. Along the way, we read literary texts in dialogue with theories of memory, historiography, and narratology. Students acquire the theoretical apparatus that enables them to analyze the complex ideas, e.g. cultural memory and trauma, historicity and narrativity, and fiction and non-fiction. Students finish the course with an in-depth knowledge of the major themes of 20th-century Russian history, e.g. empire, revolution, war, Stalinism, and exile experience, as well as increased skills in the analysis of literary texts. Students with knowledge of Russian are encouraged to read in the original language. All readings are available in English. WR, HU

* **LITR 210a / RSEE 313a / RUSS 313a / SLAV 313a and SLAV 613a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the "Khrushchev Thaw" on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: "nonconformism,"

"dissidence," "mimicry," "rebellion." The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

* **LITR 224b / FREN 403b / HUMS 409b, Proust Interpretations: Reading**

Remembrance of Things Past Pierre Saint-Amand and R Howard Bloch

A close reading (in English) of Marcel Proust's masterpiece, *Remembrance of Things Past*, with emphasis upon major themes: time and memory, desire and jealousy, social life and artistic experience, sexual identity and personal authenticity, class and nation. Portions from *Swann's Way*, *Within a Budding Grove*, *Cities of the Plain*, *Time Regained* considered from biographical, psychological/psychoanalytic, gender, sociological, historical, and philosophical perspectives. WR, HU TR

* **LITR 232a / FREN 340a / GMAN 232a / HUMS 429a / JDST 286a, Paul Celan**

Thomas Connolly

An undergraduate seminar in English exploring the life and work of Paul Celan (1920-1970), survivor of the Shoah, and one of the foremost European poets of the second half of the twentieth century. We will read from his early poems in both Romanian and German, and his published collections including *Der Sand aus den Urnen*, *Mohn und Gedächtnis*, *Von Schelle zu Schelle*, *Sprachgitter*, *Die Niemandsrose*, *Atemwende*, *Fadensonnen*, *Lichtzwang*, and *Schneepart*. We will also read from his rare pieces in prose and his correspondence with family, friends, and other intellectuals and poets including Bachmann, Sachs, Heidegger, Char, du Bouchet, Michaux, Ungaretti. A special focus on his poetic translations from French, but also Russian, English, American, Italian, Romanian, Portuguese, and Hebrew. Critical readings draw from Szondi, Adorno, Derrida, Agamben, and others. Readings in English translation or in the original languages, as the student desires. Discussions in English. None. WR, HU

* **LITR 234b / FREN 355b, Camus and the Postwar Era** Alice Kaplan

The literary and political career of French-Algerian writer Albert Camus (1913-60). His major novels and essays read both from a stylistic point of view and in the context of World War II, the Algerian War, and debates over terrorism, the death penalty, and humanitarianism. HU TR

* **LITR 235b / JDST 329b, Modern Jewish Poets** Peter Cole

This course introduces students to a diverse group of modern Jewish poets—from Gertrude Stein, Moyshe Leyb-Halpern, and Adrienne Rich to Muriel Rukeyser, Yehuda Amichai, Paul Celan, Edmond Jabès, Leonard Cohen, and others. Writing in English, Yiddish, German, Hebrew, and French, these poets gave seminal expression to Jewish life in a variety of modes and permutations, and in the process produced poems of lasting and universal value. The class explores work as art and considers pressing questions of cultural, historical, and political context. All readings are in English. HU TR

* **LITR 238b / EALL 230b / EAST 242b / HUMS 269b, Poetry and Ethics Amidst Imperial Collapse** Lucas Bender

Du Fu has for the last millennium been considered China's greatest poet. Close study of nearly one-sixth of his complete works, contextualized by selections from the tradition

that defined the art in his age. Exploration of the roles literature plays in interpreting human lives and the ways different traditional forms shape different ethical orientation. Poetry as a vehicle for moral reflection. All readings are in English. WR, HU

* **LITR 239a / CLCV 216a / MGRK 216a / WGSS 209a, Dionysus in Modernity**

George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU TR

* **LITR 251b / EALL 265b / EAST 253b, Japanese Literature after 1970**

Rosa van Hensbergen

This course is an introduction to Japanese literature written in the last fifty years, with a focus on women writers. We read poetry and prose featuring mothers, daughters, and lovers, novels that follow convenience and thrift store workers, and poetry about factory girls. Our reading takes us from the daily grind of contemporary Tokyo to dystopian futures, from 1970s suburbia to surreal dreamscapes. We attend carefully to the ways in which different writers craft their works and, in particular, to their representation of feelings and affects. Whether the dull ache of loneliness, the oppression of boredom or the heavy weight of fatigue, it is often something about the mood of a work—rather than its narrative—that leaves a distinct impression. We develop the tools to analyze and discuss this sense of distinctness, as well as discover ways to stage connections and comparisons between the works we read. HU TR

LITR 258b / LAST 267b / SPAN 267b, Studies in Latin American Literature II

Lisa Voigt

An introduction to Latin American literature from the nineteenth century to the present. Works by Borges, García Márquez, Paz, Neruda, Cortázar, and others. L5, HU TR

* **LITR 290a / PORT 353a, Machado de Assis: Major Novels**

Kenneth David Jackson
A study of the last five novels of Machado de Assis, featuring the author's world and stage of Rio de Janeiro, along with his irony and skepticism, satire, wit, narrative concision, social critiques, and encyclopedic assimilation of world literature. WR, HU

* **LITR 294a / LAST 394a / PORT 394a, World Cities and Narratives**

Kenneth David Jackson

Study of world cities and selected narratives that describe, belong to, or represent them. Topics range from the rise of the urban novel in European capitals to the postcolonial fictional worlds of major Portuguese, Brazilian, and Lusophone cities. Conducted in English. WR, HU TR

* **LITR 295a / AFAM 352a / AMST 438a / ER&M 291a / WGSS 343a, Caribbean**

Diasporic Literature Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

* **LITR 302b / FREN 307b, France by Rail: Trains in French Literature, Film, and History** Morgane Cadieu

Exploration of the aesthetics of trains in French and Francophone literature and culture, from the end of the nineteenth-century and the first locomotives, to the automatically driven subway in twenty-first century Paris. Focus on the role of trains in industrialization, colonization, deportation, decolonization, and immigration. Corpus includes novels, poems, plays, films, paintings, graphic novels, as well as theoretical excerpts on urban spaces and public transportation. Activities include: building a train at the CEID and visiting the Beinecke collections and the Art Gallery. May not be taken after FREN 306. WR, HU

* **LITR 303a / EALL 288a / EAST 316a / RSEE 316a / RUSS 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today’s America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

* **LITR 345a / EVST 228a / HIST 459a / HUMS 228a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

* **LITR 347a / HUMS 191a / ITAL 340a / WGSS 362a, Dangerous Women: Sirens, Singers, Poets and Singers from Sappho to Elena Ferrante** Jane Tylus

Was Sappho a feminist? This course tries to answer that question by analyzing how women’s voices have been appropriated by the literary and cultural canon of the west—and how in turn women writers and readers have reappropriated those voices. Students read a generous amount of literary (and in some cases, musical) works, along with a variety of contemporary theoretical approaches so as to engage in conversation about authorship, classical reception, and materiality. Following an introduction to Greek and Roman texts key for problematic female figures such as sirens and sibyls, we turn to two later historical moments to explore how women artists have both broken out of and used the western canon, redefining genre, content, and style in literary creation writ large. How did Renaissance women such as Laura Cereta, Gaspara Stampa, and Sor Juana Inés de la Cruz fashion themselves as authors in light of the classical sources they had at hand? And once we arrive in the 20th and 21st centuries, how do Sibilla Aleramo, Elsa Morante, Anna Maria Ortese, and Elena Ferrante forge a new, feminist writing via classical, queer and/or animal viewpoints? HU

* **LITR 348b / ENGL 456b / HUMS 427b / JDST 316b, The Practice of Literary Translation** Peter Cole

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation – by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises, and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

* **LITR 351b / FILM 333b, Early Film Theory and Modernity** Francesco Casetti
For a long time, early film theories have been overlooked and underestimated. Their recent rediscovery has, however, highlighted their crucial role in framing film as a "modern" invention. The main point of interest in early film theories is based on their capacity of highlight and focus some of the characteristic of modern life: speed, economy, contingency, excitation, etc. By prioritizing the filmic experience, they focalized attention on the spectator. But the idea of a "modern" art, as well as the research for a "modern" language, were also an important issue. On the background of this interest in modernity, early film theories were not uniform. Ideological differences and national identities played a major role in defining the perspective of theoretical research. In this respect, it is useful to compare the debate in the USA and in Europe and to acknowledge the very different traditions which they represented. The seminar accordingly takes into account theories in France (Delluc, Epstein), Germany (Arnheim, Kraeuer), Middle-Europe (Bálabaz, Lukács, Tille), Italy (Papini, Thovez), Soviet Union (Eisenstein, Vertov, Pudovkin) and USA (Lindsay, Freeburg, Münsterberg). Every week there is a screening with films representative of the time. HU

* **LITR 358b / FILM 425b / GMAN 275b, East German Literature and Film** Katie Trumpener

The German Democratic Republic (1949–1989) was a political and aesthetic experiment that failed, buffeted by external pressures, and eroded by internal contradictions. For forty years, in fact, its most ambitious literary texts and films (some suppressed, others widely popular) explored such contradictions, often in a vigilant, Brechtian spirit of irony and dialectics. This course examines key texts both as aesthetic experiments and as critiques of the country's emerging cultural institutions and state censorship, recurrent political debates and pressing social issues. Texts by Brecht, Uwe Johnson, Heiner Müller, Christa Wolf, Johannes Bobrowski, Franz Fühmann, Wolf Biermann, Thomas Brasch, Christoph Hein; films by Slatan Dudow, Kurt Maetzig, Konrad Wolf, Heiner Carow, Frank Beyer, Jürgen Böttcher, Volker Koepp. Knowledge of German desirable but not crucial; all texts available in English. WR, HU

* **LITR 359b / FILM 457b / ITAL 303b, Italian Film from Postwar to Postmodern**
Millicent Marcus

A study of important Italian films from World War II to the present. Consideration of works that typify major directors and trends. Topics include neorealism, self-reflexivity and metacinema, fascism and war, and postmodernism. Films by Fellini, Antonioni,

Rossellini, De Sica, Visconti, Pasolini, Bertolucci, Wertmuller, Tornatore, and Moretti. Films in Italian with English subtitles. WR, HU

LITR 361a / FILM 305a, Animation: Disney and Beyond Staff

Survey of the history of animation, considering both its aesthetics and its social potentials. The focus is on Disney and its many alternatives, with examples from around the world, from various traditions, and from different periods. HU

o Course cr

* **LITR 375b / AMST 307b / ER&M 298b / HIST 117b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. #t pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. n/a WR, HU

* **LITR 379a / FILM 321a / HUMS 435a / LAST 359a, Radical Cinemas in the Global Sixties** Moira Fradinger and Lorenz Hegel

"1968" has become a cipher for a moment of global turmoil, social transformation and cultural revolution. This class explores the "long global sixties" through cinema produced across continents. At the height of the Cold War between two blocks in the "East" and the "West," the "Third World" emerged as a radical political project alternative to a world order shaped by centuries of colonialism, imperialism, slavery, and capitalist exploitation. Liberation, emancipation, independence, anticolonialism, decolonization, and revolution became key words in the global political discourse. Leaders from Africa, Asia, and Latin America created a new international platform, the Non-Aligned Movement (NAM) that challenged the Cold War bi-polarity. Radical filmmakers who belong in this period experimented with strategies of storytelling and of capturing reality, calling into question rigid distinctions between "documentary" and "fiction" and "art and politics." The goal was not to "show" reality, but to change it. We study a world-wide range of examples that involve filmmakers' collaborations across The Americas, Western Europe, North Africa, South and South-East Asia. Taught in English; films are subtitled but knowledge of other languages may be useful. HU

* **LITR 393a / GMAN 366a / HUMS 419a / PHIL 346a, The Short Spring of German Theory**

Reconsideration of the intellectual microclimate of German academia 1945-1968. A German prelude to the internationalization effected by French theory, often in dialogue with German sources. Following Philipp Felsch's *The Summer of Theory* (English 2022): Theory as hybrid and successor to philosophy and sociology. Theory as the genre of the philosophy of history and grand narratives (e.g. "secularization"). Theory as the basis of academic interdisciplinarity and cultural-political practice. The canonization

and aging of theoretical classics. Critical reflection on academia now and then. Legacies of the inter-War period and the Nazi past: M. Weber, Heidegger, Husserl, Benjamin, Kracauer, Adorno, Jaspers. New voices of the 1950s and 1960s: Arendt, Blumenberg, Gadamer, Habermas, Jauss, Koselleck, Szondi, Taubes. German reading and some prior familiarity with European intellectual history is helpful but not essential. HU

* **LITR 399a / HSAR 350a / HUMS 425a / RLST 431a, Reality and the Realistic**

Noreen Khawaja and Joanna Fiduccia

A multidisciplinary exploration of the concept of reality in Euro-American culture. What do we mean when we say something is "real" or "realistic?" From what is it being differentiated—the imaginary, the surreal, the speculative? Can we approach a meaningful concept of the unreal? This course wagers that representational norms do not simply reflect existing notions of reality; they also shape our idea of reality itself. We study the dynamics of realism and its counterparts across a range of examples from modern art, literature, philosophy, and religion. Readings may include: Aimé Césaire, Mircea Eliade, Karen Barad, Gustave Flaubert, Sigmund Freud, Renee Gladman, Saidiya Hartman, Arthur Schopenhauer. Our goal is to understand how practices of representation reveal something about our understanding of reality, shedding light on the ways we use this most basic, yet most elusive concept. HU

* **LITR 410a / FREN 423a / HUMS 403a, Interpretations: Simone Weil** Greg

Ellermann

Intensive study of the life and work of Simone Weil, one of the twentieth century's most important thinkers. We read the iconic works that shaped Weil's posthumous reputation as "the patron saint of all outsiders," including the mystical aphorisms *Gravity and Grace* and the utopian program for a new Europe *The Need for Roots*. But we also examine in detail the lesser-known writings Weil published in her lifetime—writings that powerfully intervene in some of the most pressing debates of her day. Reading Weil alongside contemporaries such as Trotsky, Heidegger, Arendt, Levinas, and Césaire, we see how her thought engages key philosophical, ethical, and aesthetic problems of the twentieth century: the relation between dictatorship and democracy; empire and the critique of colonialism; the ethics of attention and affliction; modern science, technology, and the human point of view; the responsibility of the writer in times of war; beauty and the possibility of transcendence; the practice of philosophy as a way of life. HU

* **LITR 423a / MMES 237a, Politics and Literature in Modern Iran and Afghanistan**

Bezhan Pazhohan

This course traces the emergence of modern Persian literature in Iran and Afghanistan, introducing the contemporary poets and writers of fiction who created this new literary tradition in spite of political, social, state, and religious constraints. Our readings include Iranian novelists working under censorship, Afghan memoirists describing their experience in a warzone, and even contemporary writers living in exile in the US or Europe. Major writers include Mohammad Ali Jamalzadeh, Sadeq Hedayat, Simin Behbahani, Forugh Farrokhzad, Homeira Qaderi (who will visit the class), and Khaled Hosseini. HU

LITR 428a / HUMS 138a / MMES 138a / NELC 131a / RLST 165a, The Quran Travis

Zadeh

Introduction to the study of the Quran. Topics include: the literary, historical, and theological reception of the Quran; its collection and redaction; the scriptural milieu of

late antiquity; education and religious authority; ritual performance and calligraphic expression; the diversity of Muslim exegesis. HU

*** LITR 432a / FILM 432a / GMAN 432 / HUMS 348a, World War II: Homefront Literature and Film** Katie Trumpener

Taking a pan-European perspective, this course examines quotidian, civilian experiences of war, during a conflict of unusual scope and duration. Considering key works of wartime and postwar fiction and film alongside verbal and visual diaries, memoirs, documentaries, and video testimonies, we will explore the kinds of literary and filmic reflection war occasioned, how civilians experienced the relationship between history and everyday life (both during and after the war), women's and children's experience of war, and the ways that home front, occupation and Holocaust memories shaped postwar avant-garde aesthetics. HU

*** LITR 434b / SPAN 385b, Cervantes & Don Quixote** Nicholas Jones

This course dedicates an entire semester to a close reading of the two parts of Miguel de Cervantes's novel *Don Quixote de la Mancha*. Announcing itself as a "true history," yet, whose fictional devices clearly shine through, *Don Quixote* occupies the privileged space of first modern novel where, within its literary fabric(at)ions, a theory of the novel is devised. Our readings of *Don Quixote* examine how the classic novel inserts, parodies, and transforms all previous literary and non-literary discourses to ingeniously invent a new narrative form. To contextualize Cervantes and his literary-historic tradition, this seminar also explores questions of erotic and literary desire, the role of madness and mental health, empire and the circulation of material culture and material wealth, the Edenic narrative and ecologies of the natural world, censorship and the Inquisition, the status of representation and performance, translation, as well as the constructions of class, gender, race, and nation. We also study the legacy of *Don Quixote* and its quixotic narratives through contemporary art, essays, films, novels, science fiction, and television. This course is taught in Spanish. L5, HU

*** LITR 450b / ENGL 363b / FILM 445b, Film and Fiction in Interaction** Dudley Andrew

Beyond adaptations of complex fiction (Henry James, James Joyce) literature may underlie "original" film masterpieces (*Rules of the Game*, *Voyage to Italy*). What about the reverse? Famous novelists moonlighted in the film world (Scott Fitzgerald, Graham Greene). Others developed styles in contact with cinema (Marguerite Duras, Eileen Chang, Kazuo Ishiguro). Today are these art forms evolving in parallel and in parity under new cultural conditions? HU

*** LITR 482a / GMAN 288a / HUMS 480a / PHIL 469a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive

mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.

HU

* **LITR 491a, The Senior Essay** Samuel Hodgkin

An independent writing and research project. The minimum length for an essay is twenty-five pages. Students are urged to arrange a topic and adviser early in the term before the term in which the essay is to be written. Dates and deadlines may be found on the department website.

* **LITR 492a, The Yearlong Senior Essay** Samuel Hodgkin

An extended research project. Students must petition the curriculum committee for permission to enroll by the last day of classes in the term preceding enrollment in LITR 492. December graduates should consult the director of undergraduate studies for required deadlines. The minimum length for a yearlong senior essay is forty pages. Dates and deadline may be found on the department website.

Computer Science (CPSC)

CPSC S100a / CPSC 100a, Introduction to Computing and Programming Ozan Erat and Cody Murphey

In-person Course. Introduction to the intellectual enterprises of computer science and to the art of programming. Students learn how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development. Languages include C, Python, SQL, and JavaScript, plus CSS and HTML. Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming. 1 Credit. Session A: May 29 – June 30. Tuition: \$4850. QR

* **CPSC 035b / MUSI 035b, Twenty-First Century Electronic and Computer Music Techniques** Scott Petersen

Exploration of twenty-first century electronic and computer music through the diverse subjects and issues at the intersection of technology and new music. How computers have changed and challenged the analysis, composition, production, and appreciation of music over the last fifty years. Knowledge of basic music theory and the ability to read Western musical notation is assumed. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. QR

CPSC 100a / CPSC S100a, Introduction to Computing and Programming Ozan Erat and Cody Murphey

Introduction to the intellectual enterprises of computer science and to the art of programming. Students learn how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development. Languages include C, Python, SQL, and JavaScript, plus CSS and HTML. Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming. See CS50's website, <https://cs50.yale.edu>, for additional information. No previous programming experience required. Open to students of all levels and majors. QR o Course cr

CPSC 110a or b, Python Programming for Humanities and Social Sciences Sohee Park

Introduction to computer science and Python programming with domain-specific applications. Students learn how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, web development, and statistical tools. Students learn to apply computing techniques in the fields of social sciences & humanities by analyzing data. No previous programming experience is required. This course is intended for students of social sciences & humanities majors.
QR o Course cr

CPSC 112b, Introduction to Programming Timothy Barron and Cody Murphey
Development on the computer of programming skills, problem-solving methods, and selected applications. No previous experience with computers necessary. QR o Course cr

* **CPSC 150a, Computer Science and the Modern Intellectual Agenda** David Gelernter

Introduction to the basic ideas of computer science (computability, algorithm, virtual machine, symbol processing system), and of several ongoing relationships between computer science and other fields, particularly philosophy of mind. No previous experience with computers necessary. Enrollment limited to 25. WR, HU

CPSC 183a, Law, Technology, and Culture Brad Rosen

An exploration of the myriad ways in which law and technology intersect, with a special focus on the role of cyberspace. Topics include digital copyright, free speech, privacy and anonymity, information security, innovation, online communities, the impact of technology on society, and emerging trends. No previous experience with computers or law necessary. SO

* **CPSC 184b, Intellectual Property in the Digital Age** Cecilia Xie

The seminar focuses on the evolving and oftentimes vexing intellectual property regime of the new digital age. Topics include copyright, fair use, remix culture, access to knowledge, technological innovations, the increasing relevance of trademarks in the new information society, the tension between creativity/creating and the intellectual property rules which either foster or inhibit it, and the new information culture of the digital age. Prerequisite: CPSC 183 or permission of instructor. HU, SO

* **CPSC 185b, Control, Privacy, and Technology** Brad Rosen

The evolution of various legal doctrines with and around technological development. Topics include criminal law, privacy, search and seizure, digital rights, and the implications of technologically permitted methods of control on the law. Special attention to case law and policy. After CPSC 183. WR, SO

CPSC 200a, Introduction to Information Systems Stephen Slade

The real-world artifacts and implementations that comprise the vital computational organisms that populate our world. Hardware and software and the related issues of security, privacy, regulation, and software engineering. Examples stress practical applications of technology, as well as limitations and societal issues. After CPSC 100 or 112 or equivalent. QR

CPSC 201a or b, Introduction to Computer Science Stephen Slade

Introduction to the concepts, techniques, and applications of computer science. Topics include computer systems (the design of computers and their languages); theoretical

foundations of computing (computability, complexity, algorithm design); and artificial intelligence (the organization of knowledge and its representation for efficient search). Examples stress the importance of different problem-solving methods. After CPSC 112 or equivalent. QR

CPSC 202a or b, Mathematical Tools for Computer Science Staff

Introduction to formal methods for reasoning and to mathematical techniques basic to computer science. Topics include propositional logic, discrete mathematics, and linear algebra. Emphasis on applications to computer science: recurrences, sorting, graph traversal, Gaussian elimination. QR

CPSC 223a or b, Data Structures and Programming Techniques Staff

Topics include programming in C; data structures (arrays, stacks, queues, lists, trees, heaps, graphs); sorting and searching; storage allocation and management; data abstraction; programming style; testing and debugging; writing efficient programs. After CPSC 200, 201 or equivalent. QR

*** CPSC 280a or b, Directed Reading** Y. Richard Yang

Individual study for qualified students who wish to investigate an area of computer science not covered in regular courses. A student must be sponsored by a faculty member who sets the requirements and meets regularly with the student. Requires a written plan of study approved by the faculty adviser and the director of undergraduate studies. May be taken more than once for credit.

*** CPSC 290a or b, Directed Research** Y. Richard Yang

Individual research. Requires a faculty supervisor and the permission of the director of undergraduate studies. May be taken more than once for credit.

CPSC 323a or b, Introduction to Systems Programming and Computer Organization
Staff

Machine architecture and computer organization, systems programming in a high-level language, issues in operating systems, software engineering, prototyping in scripting languages. After CPSC 223. QR

CPSC 327a or b, Object-Oriented Programming Timothy Barron

Object-oriented programming as a means to designing and writing efficient, reliable, modular, and reusable code. Covers core concepts and features of object-oriented languages (classes, inheritance, composition, encapsulation, polymorphism, and exceptions) as well as the use of object-oriented design patterns (iterator, decorator, strategy, adapter, observer, etc.). This course was previously number CPSC 427. After CPSC 223. QR

CPSC 334a, Creative Embedded Systems Scott Petersen

Ubiquitous computing is creating new canvases and opportunities for creative ideas. This class explores the use of microprocessors, distributed sensor networks, IoT, and intermedia systems for the purposes of creative expression. The course is delivered in a mixed lecture and lab format that introduces the fundamental concepts and theory behind embedded systems as well as issues particular to their creative employment. The key objective of the course is for students to conceive of and implement creative uses of computation. To this end, skills to be obtained during the course are as follows: (1) appreciate the current efforts and motivation to push the limitations of computation for creative expression, both in new application and new foundational research; (2) weigh factors such as cost, power, processing, memory, I/O capabilities, and networking

capabilities when choosing a set of embedded devices and sensors; (3) contextualize unfamiliar hardware and languages through examples, documentation, and familiar design pattern; and (4) manage communication between multiple languages, devices, and protocols. Additionally, at the end of the course students will have a portfolio of their work in the form of writing, code, video, audio, and physical artifacts.

Prerequisite: CPSC 223 or equivalent or by permission of instructor. QR RP

CPSC 338b / EENG 348b, Digital Systems Rajit Manohar

Development of engineering skills through the design and analysis of digital logic components and circuits. Introduction to gate-level circuit design, beginning with single gates and building up to complex systems. Hands-on experience with circuit design using computer-aided design tools and microcontroller programming.

Recommended preparation: EENG 201. QR

CPSC 364a, Introduction to Blockchains, Cryptocurrencies, Smart Contracts, and Decentralized Applications Fan Zhang

This course offers an introduction to blockchain technology and its practical applications. The objective is to provide students with a comprehensive overview of the fundamental concepts and hands-on experience in building on actual blockchains. The course covers the technological foundation of the blockchain stack (consensus layer, ordering layer, execution layer, etc.), the design of representative applications (cryptocurrencies, smart contracts, Decentralized Finance, etc.), and the principles for writing secure smart contracts, and ends with an overview of the latest research directions. To provide a hands-on building experience, the course hosts a Catch-the-Flag (CTF) competition where students are asked to hack buggy smart contracts within a controlled environment. Prerequisite: CPSC 201. QR

CPSC 365a or b / ECON 365a or b, Algorithms Staff

Paradigms for algorithmic problem solving: greedy algorithms, divide and conquer, dynamic programming, and network flow. NP completeness and approximation algorithms for NP-complete problems. Algorithms for problems from economics, scheduling, network design and navigation, geometry, biology, and optimization. Provides algorithmic background essential to further study of computer science. Only one of CPSC 365, CPSC 366, or CPSC 368 may be taken for credit. Prerequisites: CPSC 202 and 223. QR

*** CPSC 366b / AMTH 366b / ECON 366b, Intensive Algorithms** Anna Gilbert

Mathematically sophisticated treatment of the design and analysis of algorithms and the theory of NP completeness. Algorithmic paradigms including greedy algorithms, divide and conquer, dynamic programming, network flow, approximation algorithms, and randomized algorithms. Problems drawn from the social sciences, Data Science, Computer Science, and engineering. For students with a flair for proofs and problem solving. Only one of CPSC 365, CPSC 366, or CPSC 368 may be taken for credit.

Prerequisites: MATH 244 and CPSC 223. QR

CPSC 370a, Artificial Intelligence Tesca Fitzgerald

How can we enable computers to make rational, intelligent decisions? This course explores fundamental techniques for Artificial Intelligence (AI), covering topics such as search, planning, learning, and reasoning under uncertainty. Through hands-on programming projects, students learn conceptual, algorithmic, and practical considerations for implementing foundational AI algorithms. By the end of this class,

students have an understanding of the history and breadth of AI problems and topics, and are prepared to undertake more advanced courses in robotics, computer vision, natural language processing, and machine learning. Prerequisites: CPSC 202 and CPSC 223. Students should also be familiar with basic object-oriented programming concepts in Python.

CPSC 413a, Computer System Security Timothy Barron

Overview of the principles and practice behind analyzing, designing, and implementing secure computer systems. Covers problems that have continued to plague computer systems for years as well as recent events and research in this rapidly evolving field of computer science. Learn to think from the perspective of an adversary; to understand systems well enough to see how their flaws could be exploited, and to consequently defend against such exploitation. Offers opportunities for hands-on exploration of attacks and defenses in the contexts of web applications, networks, and system level software. Also discusses ethical considerations and responsibilities associated with security research and practice. After CPSC 323.

* **CPSC 414b, Computing Then and Now: How Digital Technology Evolves** Michael Fischer

The goal of this course is to provide the historical perspective needed to think critically about today's emerging computing technologies such as AI, self-driving cars, autonomous drones, quantum computers, and blockchains. This course traces the evolution of selected examples of digital technology from their intellectual bases through ubiquitous deployment. Examples are drawn from computer hardware and software systems, networking, algorithms, and applications. NOTE: This course meets during Reading Period: the week between the last week of classes and finals week. Prerequisite: CPSC 223 and junior or senior level standing in the major.

CPSC 419a or b, Full Stack Web Programming Alan Weide

This course introduces students to a variety of advanced software engineering and programming techniques in the context of full-stack web programming. The focus of the course includes both client- and server-side programming (and database programming), client/server communication, user interface programming, and parallel programming. This course is designed for students who have taken CPSC 223 (but do not need CPSC 323 or higher-level computer science systems courses) and wish to learn the complete programming framework of Web programming. For a systematic treatment of core software engineering techniques, using Web programming as a running example framework, consider taking CPSC 439, which targets students with more extensive programming experiences (after CPSC 323). Prerequisite: CPSC 223

CPSC 420b / EENG 420b, Computer Architecture Yongshan Ding

This course offers a treatment of computer architectures for high-performance and power/energy-efficient computer systems. Topics include the foundations of general-purpose computing, including instruction set architectures, pipelines, superscalar and out-of-order execution, speculation, support for precise exceptions, and simultaneous multi-threading. We also cover domain-specific hardware (e.g., graphics processing units), and ongoing industry efforts to elevate them to the status of first-class computing units. In tandem, we cover topics relevant to both general-purpose and domain-specific computing, including memory hierarchies, address translation and virtual memory, on-chip networks, machine learning techniques for resource management, and coherence techniques. If time permits, we will study the basics of

emerging non-classical computing paradigms like neuromorphic computing. Overall, this course offers insights on how the computing industry is combating the waning of traditional technology scaling via acceleration and heterogeneity. Prerequisites: CPSC 323, 223, and 202. This is a programming-intensive course, so comfort with large programming projects is essential.

*** CPSC 421a, Compilers and Interpreters** Jay Lim

Compiler organization and implementation: lexical analysis, formal syntax specification, parsing techniques, execution environment, storage management, code generation and optimization, procedure linkage and address binding. The effect of language-design decisions on compiler construction. After CPSC 323. QR

CPSC 422b, Design and Implementation of Operating Systems Anurag Khandelwal

The design and implementation of operating systems. Topics include synchronization, deadlock, process management, storage management, file systems, security, protection, and networking. After CPSC 323. QR

CPSC 424a, Parallel Programming Techniques Andrew Sherman

Practical introduction to parallel programming, emphasizing techniques and algorithms suitable for scientific and engineering computations. Aspects of processor and machine architecture. Techniques such as multithreading, message passing, and data parallel computing using graphics processing units. Performance measurement, tuning, and debugging of parallel programs. Parallel file systems and I/O. Prerequisite: CPSC 323, or CPSC 223 and significant experience with C/C++ programming in another science, social science or engineering discipline, or permission of instructor. QR RP

CPSC 428b, Language-Based Security Zhong Shao

Basic design and implementation of language-based approaches for increasing the security and reliability of systems software. Topics include proof-carrying code, certifying compilation, typed assembly languages, runtime checking and monitoring, high-confidence embedded systems and drivers, and language support for verification of safety and liveness properties. After CPSC 202, 323, and MATH 222, or equivalents. QR

CPSC 429a, Principles of Computer System Design Lin Zhong

Humans are stupid; computers are limited. Yet a collaboration of humans and computers has led to ever more powerful and complex computer systems. This course examines the limitations of humans and computers in this endeavor and how they shape the design, implementation, and evaluation of computer systems. It surveys the empirical knowledge reported by scholars and practitioners that overcome such limitations. The lectures, reading assignments, and classroom discussions travel through psychology and philosophy and revisit important results from theoretical computer science, with a goal of elucidating the rationales behind the best practices in computer systems research and development. Prerequisite: CPSC 323 or equivalent. Students should have the ability to write significant system programs in at least one systems programming language (e.g., C, C++ and Rust).

CPSC 431a / MUSI 428a, Computer Music: Algorithmic and Heuristic Composition

Scott Petersen

Study of the theoretical and practical fundamentals of computer-generated music, with a focus on high-level representations of music, algorithmic and heuristic composition, and programming languages for computer music generation. Theoretical concepts are

supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223. QR

CPSC 432b / MUSI 427b, Computer Music: Sound Representation and Synthesis

Scott Petersen

Study of the theoretical and practical fundamentals of computer-generated music, with a focus on low-level sound representation, acoustics and sound synthesis, scales and tuning systems, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223. QR

CPSC 433b, Computer Networks Y. Richard Yang

An introduction to the design, implementation, analysis, and evaluation of computer networks and their protocols. Topics include layered network architectures, applications, transport, congestion, routing, data link protocols, local area networks, performance analysis, multimedia networking, network security, and network management. Emphasis on protocols used in the Internet. After CPSC 323. QR

*** CPSC 434a, Topics in Networked Systems** Y. Richard Yang

Study of networked systems such as the Internet and mobile networks which provide the major infrastructure components of an information-based society. Topics include the design principles, implementation, and practical evaluation of such systems in new settings, including cloud computing, software-defined networking, 5G, Internet of things, and vehicular networking. Concurrently with or after CPSC 323. QR

CPSC 435b, Building an Internet Router Robert Soule

Over the course of the semester, students build a fully functioning Internet router. Students design the control plane in Python on a Linux host and design the data plane in the new P4 language on the bmv2 software switch. To provide context and background for the design of their router, students read a selection of papers to get both a historical perspective and exposure to current research in networking. Prerequisite: CPSC 433.

CPSC 437a or b, Introduction to Database Systems Avi Silberschatz

Introduction to database systems. Data modeling. The relational model and the SQL query language. Relational database design, integrity constraints, functional dependencies, and normal forms. Object-oriented databases. Database data structures: files, B-trees, hash indexes. After CPSC 223. QR

*** CPSC 438a, Big Data Systems: Trends & Challenges** Anurag Khandelwal

Today's internet scale applications and cloud services generate massive amounts of data. At the same time, the availability of inexpensive storage has made it possible for these services and applications to collect and store every piece of data they generate, in the hopes of improving their services by analyzing the collected data. This introduces interesting new opportunities and challenges designing systems for collecting, analyzing and serving the so called "big data". This course looks at technology trends that have paved the way for big data applications, survey state of the art systems for storage and processing of big data, and future research directions driven by open research problems. Our discussions span topics such as cluster architecture, big data analytics stacks, scheduling and resource management, batch and stream analytics, graph processing, ML/AI frameworks, serverless platforms and disaggregated architectures. Prerequisite: CPSC 323.

CPSC 439a or b, Software Engineering Timos Antonopoulos

Introduction to fundamental concepts in software engineering and to the development and maintenance of large, robust software systems. The process of collecting requirements and writing specifications; project planning and system design; methods for increasing software reliability, including delta debugging and automatic test-case generation; type systems, static analysis, and model checking. Students build software in teams. After CPSC 323. QR RP

CPSC 440a, Database Design and Implementation Robert Soule

This course covers advanced topics in Database Systems, expanding on the material covered in CPSC 437. Topics include complex data types; application development; big data; data analytics; parallel and distributed storage; parallel and distributed query processing; advanced indexing techniques; advanced relational database design; and object-based databases. QR

CPSC 441a, Zero-Knowledge Proofs Benjamin Fisch

This is a course in cryptographic proof systems. In the digital world today, we trust services to perform many kinds of computations on our data, from managing financial ledgers and databases to complex analytics. We trust these services not only to operate correctly, but also to keep our information private. Proof systems allow us to remove this trust. A succinct proof system is a system that enables a service to attach a small certificate on the correctness of its computation, and the certificate can be verified by small devices, even if the original computation needs substantial computation to compute this result. Beyond correctness, a zero-knowledge proof system enables us to prove knowledge of secret information, including hidden inputs to a computation that achieves a certain output. Both types of proof systems have incredible applications to privacy and verifiability in a decentralized web. Prerequisites: CPSC 201 and 202 (or equivalent, e.g. MATH 244). Recommended: CPSC 467 (Cryptography), MATH 225 (Linear Algebra).

CPSC 442a, Theory of Computation Dylan McKay

This course first introduces core, traditional ideas from the theory of computation with more modern ideas used in the process, including basic ideas of languages and automata. Building on the core ideas, the course then covers a breadth of topics in modular units, where each unit examines a new model and potentially a new perspective on computation. Topics may include: basic notions of Complexity Theory, provability and logic, circuits and non-uniform computation, randomized computation, quantum computation, query-based computation, notions of machine learning, compression, algebraic models of computation. Additional topics might be introduced in lectures or student projects, according to student interests, including mechanism design, voting schemes, cryptography, biological computation, distributed computation, and pseudorandomness. Prerequisite: one of CPSC 365, 366, or 368 is required. This course is a proof-based theory course and mathematical maturity is expected.

CPSC 443a, Optimal Transport: Theory, Algorithms and Applications to Data Science

Smita Krishnaswamy

Optimal transport started with Gaspard Monge in the 1700s when he stated the problem of moving a large pile of sand (whose shape is a probability distribution) to a target pile with minimal effort. The optimal transport plan not only gives a coupling between distributions but also a metric between such probability measures, which has

found use in everything from modern neural networks to economic resource allocation problems, to shape matching in computer vision. This class covers the theoretical foundations as well as computational aspects of optimal transport starting with the original formulations as maps between discrete measures, and extending to general measures as well as the key Kantorovich relaxation as a coupling between measures, and its metric properties. We also cover algorithmic foundations of optimal transport using linear programs that have recently been sped-up via entropic regularizations. In addition to the primal form we cover the dual form and relaxations which lead to integral probability metrics. We vary the ground space of optimal transport from Euclidean, to arbitrary metrics, to graphs. We move from static to dynamic formulations of optimal transport, which can provide paths of flow for dynamics that are energy-constrained. Finally, we cover important extensions such as unbalanced optimal transport which allows for transport between generic measures (without the same volume), and for Gromov-Wasserstein distances between measures on different metric spaces. Prerequisites: MATH 241, CPSC 202, CPSC 223, and CPSC 365. Knowledge of python programming is also required.

CPSC 446a, Data and Information Visualization Holly Rushmeier

Visualization is a powerful tool for understanding data and concepts. This course provides an introduction to the concepts needed to build new visualization systems, rather than to use existing visualization software. Major topics are abstracting visualization tasks, using visual channels, spatial arrangements of data, navigation in visualization systems, using multiple views, and filtering and aggregating data. Case studies to be considered include a wide range of visualization types and applications in humanities, engineering, science, and social science. Prerequisite: CPSC 223.

CPSC 447a, Introduction to Quantum Computing Yongshan Ding

This course introduces the fundamental concepts in the theory and practice of quantum computation. Topics include information processing, quantum programming, quantum compilation, quantum algorithms, and error correction. The objective of the course is to engage students in applying fresh thinking to what computers can do – we establish an understanding of how quantum computers store and process data, and discover how they differ from conventional digital computers. We anticipate this course will be of interest to students working in computer science, electrical engineering, physics, or mathematics. Prerequisites: CPSC 201 and CPSC 202. Basic familiarity with discrete probability and linear algebra is recommended. Prior experience in quantum computing is useful but not required. SC

CPSC 452b, Deep Learning Theory and Applications Smita Krishnaswamy

Deep neural networks have gained immense popularity within the last decade due to their success in many important machine learning tasks such as image recognition, speech recognition, and natural language processing. This course provides a principled and hands-on approach to deep learning with neural networks. Students master the principles and practices underlying neural networks including modern methods of deep learning, and apply deep learning methods to real-world problems including image recognition, natural language processing, and biomedical applications. The course is based on homework, a final exam, and a final project (either group or individual, depending on the total number enrolled). The project includes both a written and oral (i.e. presentation) component. The course assumes basic prior knowledge in

linear algebra and probability. Prerequisites: CPSC 202 and knowledge of Python Programming.

CPSC 454a, Software Analysis and Verification Ruzica Piskac

Introduction to concepts, tools, and techniques used in the formal verification of software. State-of-the-art tools used for program verification; detailed insights into algorithms and paradigms on which those tools are based, including model checking, abstract interpretation, decision procedures, and SMT solvers. After CPSC 202 and 323 or equivalents. QR RP

CPSC 455a / ECON 425a, Economics and Computation Staff

A mathematically rigorous investigation of the interplay of economic theory and computer science, with an emphasis on the relationship of incentive-compatibility and algorithmic efficiency. Our main focus is on algorithmic tools in mechanism design, algorithms and complexity theory for learning and computing Nash and market equilibria, and the price of anarchy. Case studies in Web search auctions, wireless spectrum auctions, matching markets, and network routing, and social networks. Prerequisite: CPSC 365 or permission of the instructor. Familiarity with basic microeconomic theory is helpful but not required. QR

* **CPSC 457a, Sensitive Information in a Connected World** Michael Fischer

Issues of ownership, control, privacy, and accuracy of the huge amount of sensitive information about people and organizations that is collected, stored, and used by today's ubiquitous information systems. Readings consist of research papers that explore both the power and the limitations of existing privacy-enhancing technologies such as encryption and "trusted platforms." Junior or senior level standing with some background in computer science is required.

CPSC 458b, Automated Decision Systems Stephen Slade

The spectrum of automated decision models and tools, with a focus on their costs and effectiveness. Examples from a variety of fields, including finance, risk management, robotics, medicine, and politics. After CPSC 223 or equivalents. QR

* **CPSC 459a, Building Interactive Machines** Marynel Vazquez

This advanced course brings together methods from machine learning, computer vision, robotics, and human-computer interaction to enable interactive machines to perceive and act in a variety of environments. Part of the course examines approaches for perception with different sensing devices and algorithms; the other part focuses on methods for decision making and applied machine learning for control. Understanding of probability, differential calculus, linear algebra, and planning (in Artificial Intelligence) is expected for this course. Programming assignments require proficiency in Python and high-level familiarity with C++. Prerequisites: CPSC 201, CPSC 202, and CPSC 470 (or 570), or permission of the instructor. QR

CPSC 463b, Algorithms for Convex Optimization Nisheeth Vishnoi

Convex optimization has played a major role in the recent development of fast algorithms for problems arising in areas such as theoretical computer science, discrete optimization, and machine learning. The goal of this course is to design state-of-the-art algorithms for various classical discrete problems through the use of continuous optimization/sampling. The approach is to first formulate the problem as a continuous (convex) optimization problem, even though the problem is over a discrete domain, adapt or develop deterministic or randomized continuous-time dynamical systems to

solve it, and then design algorithms for the problem via appropriate discretizations. The algorithmic applications include maximum flow in graphs, maximum matching in bipartite graphs, linear programming, submodular function minimization, and counting problems involving discrete objects such as matroids. We present approaches gradient descent, mirror descent, interior-point methods, and cutting plane methods. Prerequisites: CPSC 365 or permission of the instructor. S&DS 430 and a solid background in calculus, linear algebra, probability, and algorithms is recommended.

*** CPSC 464a, Algorithms and their Societal Implications** Nisheeth Vishnoi
Today's society comprises humans living in an interconnected world that is intertwined with a variety of sensing, communicating, and computing devices. Human-generated data is being recorded at unprecedented rates and scales, and powerful AI and ML algorithms, which are capable of learning from such data, are increasingly controlling various aspects of modern society: from social interactions. These data-driven decision-making algorithms have a tremendous potential to change our lives for the better, but, via the ability to mimic and nudge human behavior, they also have the potential to be discriminatory, reinforce societal prejudices, violate privacy, polarize opinions, and influence democratic processes. Thus, designing effective tools to govern modern society which reinforce its cherished values such as equity, justice, democracy, health, privacy, etc. has become paramount and requires a foundational understanding of how humans, data, and algorithms interact. This course is for students who would like to understand and address some of the key challenges and emerging topics at the aforementioned interplay between computation and society. On the one hand, we study human decision-making processes and view them through the lens of computation and on the other hand we study and address the limitations of artificial decision-making algorithms when deployed in various societal contexts. The focus is on developing solutions through a combination of foundational work such as coming up with the right definitions, modeling, algorithms, and empirical evaluation. The current focus is on bias and privacy, with additional topics including robustness, polarization, and democratic representation. Solid mathematical and programming background is necessary to enroll in this course. CPSC 365 and S&DS 251 are recommended.

CPSC 465a, Theory of Distributed Systems James Aspnes
Models of asynchronous distributed computing systems. Fundamental concepts of concurrency and synchronization, communication, reliability, topological and geometric constraints, time and space complexity, and distributed algorithms. After CPSC 365 or 366. QR

CPSC 466b, Blockchain and Cryptocurrency Benjamin Fisch
This course is an introduction to blockchain systems, such as Bitcoin and Ethereum. We begin with a brief history of blockchains and an overview of how they are being used today before launching into foundational topics, including distributed consensus, smart contracts, cryptographic building blocks from signatures to authenticated datastructures, and the economics of blockchains. We then cover advanced topics including the scalability and interoperability of blockchain systems and applications such as “decentralized finance” (DeFi). The lectures and assignments engage students in both theoretical and applied aspects of blockchain systems. The course assumes background in various fundamental areas of CS, including discrete math, probability, algorithms, data structures, and networks. Required: CPSC 202 and 223 (or equivalent). Recommended: CPSC 467 (Cryptography). QR

CPSC 467b, Introduction to Cryptography Staff

This class introduces modern symmetric and public-key cryptography as well as their broad applications, both from a theoretical and practical perspective. There is an initial emphasis on fundamental cryptographic primitives (e.g., block ciphers, pseudorandom functions, pseudorandom generators, one-way functions), their concrete efficiency and implementation as well as their security definitions and proofs. Ways of combining such primitives that lead to more complex objects used to secure today's internet (e.g., via TLS), such as key exchange, randomized encryption, message authentication codes and digital signatures are also studied. The last part of the class is devoted to modern and more advanced applications of cryptography (some of which are deployed at scale today), such as authenticated data structures, zero-knowledge proofs, oblivious RAM, private information retrieval, secret sharing, distributed consensus and cryptocurrencies (e.g. Bitcoin). Some programming may be required. After CPSC 202 or MATH 244, and CPSC 223. QR

CPSC 469b, Randomized Algorithms James Aspnes

A study of randomized algorithms from several areas: graph algorithms, algorithms in algebra, approximate counting, probabilistically checkable proofs, and matrix algorithms. Topics include an introduction to tools from probability theory, including some inequalities such as Chernoff bounds. After CPSC 365 or 366; a solid background in probability is desirable. QR

CPSC 472a, Intelligent Robotics Brian Scassellati

Introduction to the construction of intelligent, autonomous systems. Sensory-motor coordination and task-based perception. Implementation techniques for behavior selection and arbitration, including behavior-based design, evolutionary design, dynamical systems, and hybrid deliberative-reactive systems. Situated learning and adaptive behavior. After CPSC 201 and 202 or equivalents. May not be taken after CPSC 473. QR

CPSC 474a or b, Computational Intelligence for Games James Glenn

Introduction to techniques used for creating computer players for games, particularly board games. Topics include combinatorial and classical game theory, stochastic search methods, applications of neural networks, and procedural content generation. Prerequisites: CPSC 202 and CPSC 223. QR

CPSC 475a / BENG 475a / EENG 475a, Computational Vision and Biological Perception Steven Zucker

An overview of computational vision with a biological emphasis. Suitable as an introduction to biological perception for computer science and engineering students, as well as an introduction to computational vision for mathematics, psychology, and physiology students. Prerequisite: CPSC 112 and MATH 120, or with permission of instructor. QR, SC RP

CPSC 476b / BENG 476b, Advanced Computational Vision Steven Zucker

Advanced view of vision from a mathematical, computational, and neurophysiological perspective. Emphasis on differential geometry, machine learning, visual psychophysics, and advanced neurophysiology. Topics include perceptual organization, shading, color and texture analysis, and shape description and representation. After CPSC 475. QR, SC

CPSC 477b, Natural Language Processing Arman Cohan

Linguistic, mathematical, and computational fundamentals of natural language processing (NLP). Topics include part of speech tagging, Hidden Markov models, syntax and parsing, lexical semantics, compositional semantics, machine translation, text classification, discourse, and dialogue processing. Additional topics such as sentiment analysis, text generation, and deep learning for NLP. Prerequisites: CPSC 202 and CPSC 223, or permission of instructor. QR

CPSC 478a, Computer Graphics Theodore Kim

Introduction to the basic concepts of two- and three-dimensional computer graphics. Topics include affine and projective transformations, clipping and windowing, visual perception, scene modeling and animation, algorithms for visible surface determination, reflection models, illumination algorithms, and color theory. After CPSC 202 and 223. QR

*** CPSC 479b, Advanced Topics in Computer Graphics** Julie Dorsey

An in-depth study of advanced algorithms and systems for rendering, modeling, and animation in computer graphics. Topics vary and may include reflectance modeling, global illumination, subdivision surfaces, NURBS, physically-based fluids systems, and character animation. After CPSC 202 and 223. QR

CPSC 480a, Introduction to Computer Vision Alex Wong

This course focuses on fundamental topics in computer vision. We begin with the image formation process and discuss the role of camera models and intrinsic calibration in perspective projection. Basic image processing techniques (i.e. filtering) is introduced. After which, we discuss techniques to describe an image, from edges to feature descriptors and methods to establish correspondences between different images of the same scene. The course additionally covers topics in recognition (i.e. image classification, segmentation, detection, etc.) and reconstruction (i.e. stereo, structure-from-motion, optical flow). Machine learning and deep learning based methods in a subset of the topics covered are also introduced. Students get hands-on experience in implementing the techniques covered in the class and applying them to real world datasets and applications. Students taking this course must have successfully passed courses in data structures and object-oriented programming (e.g. CPSC 223a or equivalent courses), and foundational mathematical tools such as discrete math and linear algebra (e.g. CPSC 202 or equivalent courses). It is recommended that students have taken or successfully passed calculus (e.g. MATH 112, MATH 115, MATH 120, or equivalent courses), and linear algebra (e.g. MATH 225, or equivalent courses). A background in statistics, machine learning and deep learning is useful, but not required. Experience in programming with Python is preferable, as we use it for assignments and projects. Familiarity with Google Colab, and numerical and image processing packages (i.e. NumPy, SciPy, and Sci-kit Image) is helpful throughout the course.

*** CPSC 482b, Current Topics in Applied Machine Learning** David van Dijk

We cover recent advances in machine learning that focus on real-world data. We discuss a wide range of methods and their applications to diverse domains, such as finance, health care, genomics, protein folding, drug discovery, neuroscience, and natural language processing. The seminar is based on a series of lectures by the instructor, guest lecturers, and student presentations. Student presentations are expected to be on recent publications from leading journals and conferences in the field, and are followed by discussions. A final project involves the application of a machine learning method

to real-world data. Prerequisites: Basic programming knowledge (e.g., CPSC 112 or equivalent, in Python); mathematical background in Linear algebra (e.g., MATH 222/225 or equivalent); and Calculus (e.g., MATH 120 or equivalent); or instructor permission.

CPSC 483a, Deep Learning on Graph-Structured Data Rex Ying

Graph structure emerges in many important domain applications, including but not limited to computer vision, natural sciences, social networks, languages and knowledge graphs. This course offers an introduction to deep learning algorithms applied to such graph-structured data. The first part of the course is an introduction to representation learning for graphs, and covers common techniques in the field, including distributed node embeddings, graph neural networks, deep graph generative models and non-Euclidean embeddings. The first part also touches upon topics of real-world significance, including auto-ML and explainability for graph learning. The second part of the course covers important applications of graph machine learning. We learn ways to model data as graphs and apply graph learning techniques to problems in domains including online recommender systems, knowledge graphs, biological networks, physical simulations and graph mining. The course covers many deep techniques (graph neural networks, graph deep generative models) catered to graph structures. We will cover basic deep learning tutorials in this course. Prerequisites: CPSC 201, CPSC 223, and one of CPSC 365 or CPSC 366. Knowledge of graphs as a data structure, and understanding of basic graph algorithms are essential for applying machine learning to graph-structured data. Familiarity with Python and important libraries such as Numpy and Pandas are helpful. CPSC 452 and CPSC 453 are highly recommended prior because they cover the foundations of deep neural networks. Experience in machine Learning courses such as CPSC 481, and Graph Theory courses such as CPSC 462 are welcomed as well. QR

CPSC 484b, Introduction to Human-Computer Interaction Marynel Vazquez

This course introduces students to the interdisciplinary field of Human-Computer Interaction (HCI), with particular focus on Human-Robot Interaction (HRI). The first part of the course covers principles and techniques in the design, development, and evaluation of interactive systems. It provides students with an introduction to UX Design and User-Centered Research. The second part focuses on the emergent field of HRI and several other non-traditional interfaces, e.g., AR/VR, tangibles, crowdsourcing. The course is organized as a series of lectures, presentations, a mid-term exam, and a semester-long group project on designing a new interactive system. After CPSC 201 and 202 or equivalents. Students who do not fit this profile may be allowed to enroll with the permission of the instructor. SO

CPSC 485a, Applied Planning and Optimization Daniel Rakita

This course introduces students to concepts, algorithms, and programming techniques pertaining to planning and optimization. At a high level, the course teaches students how to break down a particular problem into a state-space or a state-action space, how to select an effective planning or optimization algorithm given the problem at hand, and how to ultimately apply the selected algorithm to achieve desired outputs. Concepts are solidified through grounded, real-world examples (particularly in robotics, but also including machine learning, graphics, biology, etc.). These examples come in the form of programming assignments, problem sets, and a final project. General topics include discrete planning, sampling-based path planning, optimization via matrix methods,

linear programming, computational differentiation, non-linear optimization, and mixed integer programming. After the course, students are able to generalize their knowledge of planning and optimization to any problem domain. Knowledge of linear algebra and calculus is expected. Students should be familiar with matrix multiplication, derivatives, and gradients. QR

CPSC 486b, Probabilistic Machine Learning Andre Wibisono

This course provides an overview of the probabilistic frameworks for machine learning applications. The course covers probabilistic generative models; learning and inference; algorithms for sampling; and a survey of generative diffusion models. This course studies the theoretical analysis of the problems and how to design algorithms to solve them. This course familiarizes students with techniques and results in literature, and prepares them for research in machine learning. Prerequisites: Introductory machine learning (CPSC 481 or S&DS 265); linear algebra (MATH 222); probability (S&DS 241); and calculus (MATH 120).

CPSC 488a, AI Foundation Models Arman Cohan

Foundation models are a recent class of AI models that are large-scale in terms of number of parameters and are trained on broad data (generally using self-supervision at scale). These models have demonstrated exceptional capabilities in natural language processing, computer vision, and other tasks. Examples of Foundation Models are GPT-4, ChatGPT, GPT-3, Dall-E, Stable Diffusion, etc. In this course, we discuss building blocks of foundation models, including transformers, self-supervised learning, transfer learning, learning from human feedback, power of scale, large language models, in-context learning, chain-of-thought prompting, parameter-efficient fine-tuning, vision transformers, diffusion models, generative modeling, safety, ethical and societal considerations, their impact, etc. While the course primarily focuses on advances on large language models, we also cover foundation models in computer vision, as well as multi-modal foundation models. Prerequisite: Either CPSC 477 or CPSC 480, or permission of the instructor.

* **CPSC 490a or b, Senior Project** Sohee Park

Individual research intended to fulfill the senior requirement. Requires a faculty supervisor and the permission of the director of undergraduate studies. The student must submit a written report about the results of the project.

Computer Science and Economics (CSEC)

CSEC 491a or b, Senior Project Philipp Strack

This one-term independent-project course explicitly combines both techniques and subject matter from computer science and economics. A project proposal must be approved by the DUS and project adviser by the end of the third week of the term in which the student is enrolled.

Computing and the Arts (CPAR)

Czech (CZEC)

CZEC 110a, Elementary Czech I Staff

This course aims to develop basic proficiency in understanding, reading, speaking and writing the Czech language. Through work with a textbook, workbook, audio files

and a broad range of authentic printed and online Czech language materials, students should develop mastery of the most essential vocabulary and grammatical structures necessary for basic communication in Czech and for laying a solid foundation for further study of the language. L1 RP 1½ Course cr

The DeVane Lecture Course (DEVN)

Information about the Devane Lecture course is pending.

Directed Studies (DRST)

Dutch (DUTC)

* DUTC 110a, Elementary Dutch I Staff

The basic grammar of Dutch. Intensive practice in listening, speaking, reading, and writing in everyday contexts. Introduction to the society and culture of the Netherlands and Flanders (Belgium). Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

* DUTC 120b, Elementary Dutch II Staff

Continuation of DUTC 110, with a focus on improving the four language skills. Further study of Dutch grammar and vocabulary through a variety of media, including television and radio. The society, culture, and habits of Dutch-speaking peoples in the Netherlands and Belgium. DUTC 110 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 RP 1½ Course cr

* DUTC 130a, Intermediate Dutch I Staff

Continued development of reading, writing, and speaking proficiency in Dutch. Students review and improve grammar skills, expand their vocabulary, read newspaper articles, and watch and listen to Dutch newscasts. Prerequisite: DUTC 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

DUTC 140b, Intermediate Dutch II Staff

Use of authentic Dutch texts to expand proficiency in the language and familiarity with the culture. Focus on Dutch cultural themes that reflect students' interests and fields of study. Readings include a novel and news articles on current events. Prerequisite: DUTC 130. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

* DUTC 150a, Advanced Dutch Staff

Continuation of DUTC 140. Focus on improvement of grammatical knowledge; proficiency in reading, writing, and speaking Dutch; and cultural insight and knowledge of Amsterdam and the Netherlands. Prerequisite: DUTC 140 or equivalent. Course taught through distance learning using videoconferencing technology

from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L5

*** DUTC 160b, Advanced Dutch II** Staff

Continuation of DUTC 150. Focus on improvement of grammatical knowledge; proficiency in reading, writing, and speaking Dutch; and cultural insight and knowledge of Amsterdam and the Netherlands. Prerequisite: DUTC 150 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L5

Earth and Planetary Sciences (EPS)

EPS 101a, Climate Change Mary-Louise Timmermans and Noah Planavsky
An introductory course that explores the science of global climate change. We analyze processes that regulate the climate on Earth, assess the scientific evidence for global warming, and discuss consequences of climate change. We explore Earth's climate history as it relates to the present climate as well as future climate projections. Uncertainty in the interpretation of climate observations and future projections are examined. SC

*** EPS 105b / APHY 100b / ENAS 100b / EVST 100b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC

EPS 110a, Dynamic Earth David Evans

An introduction to the Earth as a planetary system, from its atmosphere to its core; and how the constantly changing surface environment controls both the foundation and fate of industrial society. Topics include planetary structure; plate tectonics, earthquakes and volcanoes; minerals, rocks and soils; evolution of landscapes; hydrology and floods; coasts and oceans; climate and weather; Earth history and biological evolution; humanity's economic dependence on natural resources; and human influences on the natural environment. SC

EPS 111La, Dynamic Earth Laboratory and Field Methods David Evans

Practical exercises in the laboratory and in the field to complement EPS 110 or 115. Identification of minerals and rocks; construction of geologic maps and cross sections to determine Earth-system processes and histories. Includes a field trip to the northern Appalachians during the October recess. After or concurrently with EPS 110, or after EPS 115. SC ½ Course cr

*** EPS 240a, Forensic Geoscience** Maureen Long

Approaches and technologies developed for geoscience that have been adapted and applied in criminal, environmental, historical, and archaeological investigations. Methods related to seismology, geophysics, geomorphology, geochemistry, and radiometric dating. Case studies include nuclear treaty verification, detection of unexploded ordnance and clandestine graves, military history, soil and groundwater contamination, archaeological controversies, art and antiquities fraud, and narcotics provenance. SC

EPS 274a, Fossil Fuels and World Energy Michael Oristaglio

The origins, geologic settings, exploration, distribution, and extraction of coal, oil, and natural gas as finite Earth resources. The role of fossil fuels in the world's energy systems; environmental impacts of fossil fuels, including climate change; the transition to low-carbon energy sources. Prerequisites: high school chemistry, mathematics, and Earth science. Recommended preparation: G&G 110 or 205. SC

EPS 319a, Introduction to the Physics and Chemistry of Earth Materials Shun-ichiro Karato

Basic principles that control the physical and chemical properties of Earth materials. Thermodynamics, equation of state, phase transformations, elastic properties and phase diagrams. After CHEM 161, 165, or 167 (or CHEM 115), MATH 120, and PHYS 181, or equivalents. QR, SC

EPS 325a, Vertebrate Paleontology Jacques Gauthier

Phylogeny and evolution of the major clades of vertebrates from Cambrian to Recent, as inferred mainly from the fossilized remains of the musculoskeletal system (cranial, axial, and appendicular skeletons). Special attention given to the evolution of vertebrate feeding, locomotor, and sensory systems. Prerequisite: E&EB 225, or with permission of instructor. SC 1½ Course cr

EPS 335a, Physical Oceanography Alexey Fedorov

An introduction to ocean dynamics and physical processes controlling large-scale ocean circulation, the Gulf Stream, wind-driven waves, tsunamis, tides, coastal upwelling, and other phenomena. Modern observational, theoretical, and numerical techniques used to study the ocean. The ocean's role in climate and global climate change. After PHYS 181 and MATH 120 or equivalents, or with permission of instructor. QR, SC

*** EPS 336b / ANTH 336b / ARCG 336b, Geoarchaeology** Ellery Frahm

A survey of the numerous ways in which theories, approaches, techniques, and data from the earth and environmental sciences are used to address archaeological research questions. A range of interfaces between archaeology and the geological sciences are considered. Topics include stratigraphy, geomorphology, site formation processes, climate reconstruction, site location, and dating techniques. Prior introductory coursework in archaeology or geology (or instructor permission) suggested. SC, SO

EPS 342a / PHYS 342a, Introduction to Earth and Environmental Physics John Wettlaufer

A broad introduction to the processes that affect the past, present, and future features of the Earth. Examples include climate and climate change and anthropogenic activities underlying them, planetary history, and their relation to our understanding of Earth's present dynamics and thermodynamics. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. Recommended preparation: familiarity with basic calculus and differential equations. QR, SC

*** EPS 487a, Individual Study in Earth and Planetary Sciences** Staff

Individual study for qualified undergraduates under faculty supervision. To register for this course, each student must submit a written plan of study, approved by the adviser, to the director of undergraduate studies. May be taken more than once for credit. ½ Course cr

*** EPS 488a, Research in Earth and Planetary Sciences** Staff

Individual study for qualified juniors and seniors under faculty supervision. To register for this course, each student must submit a written plan of study, approved by the adviser, to the director of undergraduate studies.

*** EPS 490a and EPS 491a, Research and Senior Thesis** Staff

Two terms of independent library, laboratory, field, or modeling-based research under faculty supervision. To register for this course, each student must submit a written plan of study, approved by a faculty adviser, to the director of undergraduate studies by the start of the senior year. The plan requires approval of the full EPS faculty.

*** EPS 492a, The Senior Essay** Staff

One term of independent library, laboratory, field, or modeling-based research under faculty supervision. To register for this course, each student must submit a written plan of study, approved by a faculty adviser, to the director of undergraduate studies at the beginning of the term in which the essay is to be written.

East Asian Languages and Literatures (EALL)

EALL 200a / CHNS 200a / EAST 240a / HUMS 270a, The Chinese Tradition Staff

An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU TR o Course cr

*** EALL 230b / EAST 242b / HUMS 269b / LITR 238b, Poetry and Ethics Amidst Imperial Collapse** Lucas Bender

Du Fu has for the last millennium been considered China's greatest poet. Close study of nearly one-sixth of his complete works, contextualized by selections from the tradition that defined the art in his age. Exploration of the roles literature plays in interpreting human lives and the ways different traditional forms shape different ethical orientation. Poetry as a vehicle for moral reflection. All readings are in English. WR, HU

*** EALL 234a / EAST 410a, Japanese Detective Fiction** Staff

This class offers an overview of modern Japanese literature with a focus on detective fiction. Through detective fiction we can examine key concepts in literature such as narrative voice, point of view, genre, modernism and postmodernism, and learn about debates in Japanese literature, the distinction between highbrow and popular fiction, and the relation between Japanese literature and translated fiction. Detective fiction also allows for the exploration of key issues in Japanese history and society such as consumerism, colonialism, class, gender, and sexuality. Readings include a wide range of texts by canonical and popular writers, as well as theoretical texts on genre and detective fiction. All texts are available in English and no prior knowledge of Japanese or Japan is needed. HU

*** EALL 237a / EAST 404a / FILM 399a, Nuclear Disasters and Trauma in Japanese Cinema and Beyond** Staff

This course examines the ways nuclear disasters are depicted in contemporary Japanese cinema. More specifically, we look at atomic bombings in Hiroshima and Nagasaki

(1945), and the Fukushima Daiichi Nuclear Disaster (2011), and how the dormant trauma towards nuclear power has influenced Japanese cinema/media. As the artists portraying disasters often face the limits of representation, their works raise the following questions: how can cinema depict disasters that are indescribable in nature? How might cinema cause or resist tendencies towards post-catastrophic nationalism? In what ways can cinema address disaster that other forms of media cannot? What filmic techniques can be used to dramatize disastrous moments? Can cinema “foresee” unfolding or upcoming disasters? While considering these questions, this course also introduces the methodologies to write/discuss about film as an art form by examining different cinematic elements such as visual, sound, narrative, performance, and touch.

HU

* **EALL 253a / MUSI 494a / THST 218a, Remapping Dance** Amanda Reid, Ameera Nimjee, and Rosa van Hensbergen

What does it mean to be at home in a body? What does it mean to move freely, and what kinds of bodies are granted that right? How is dance encoded as bodies move between various sites? In this team-taught class, we remap the field of dance through its migratory routes to understand how movement is shaped by the connections and frictions of ever-changing communities. As three dance scholars, bringing specialisms in West Indian dance, South Asian dance, and East Asian dance, we are looking to decenter the ways in which dance is taught, both in what we teach and in the ways we teach. Many of the dancers we follow create art inspired by migration, exile, and displacement (both within and beyond the nation) to write new histories of political belonging. Others trace migratory routes through mediums, ideologies, and technologies. The course is structured around four units designed to invite the remapping of dance through its many spaces of creativity: The Archive, The Studio, The Field, and The Stage. Throughout, we explore how different ideas of virtuosity, risk, precarity, radicalism, community, and solidarity are shaped by space and place. We rethink how local dance economies are governed by world markets and neoliberal funding models and ask how individual bodies can intervene in these global systems.

No dance background is required, but students have the opportunity to take part in some accessible movement practice. HU TR

* **EALL 265b / EAST 253b / LITR 251b, Japanese Literature after 1970** Rosa van Hensbergen

This course is an introduction to Japanese literature written in the last fifty years, with a focus on women writers. We read poetry and prose featuring mothers, daughters, and lovers, novels that follow convenience and thrift store workers, and poetry about factory girls. Our reading takes us from the daily grind of contemporary Tokyo to dystopian futures, from 1970s suburbia to surreal dreamscapes. We attend carefully to the ways in which different writers craft their works and, in particular, to their representation of feelings and affects. Whether the dull ache of loneliness, the oppression of boredom or the heavy weight of fatigue, it is often something about the mood of a work—rather than its narrative—that leaves a distinct impression. We develop the tools to analyze and discuss this sense of distinctness, as well as discover ways to stage connections and comparisons between the works we read. HU

* **EALL 267a, Japan's Global Modernisms: 1880-1980** Rosa van Hensbergen

This course is an introduction to Japanese literature from the 1880s to 1980s. Our reading is guided by a different “ism” each week, from 19th-century eroticism and

exoticism, through mid-century cosmopolitanism and colonialism, to second-wave feminism and existentialism in the wake of World War II. These distinct moments in the development of Japanese modernism (modanizumu) are shaped by encounters with foreign cultures, and by the importing of foreign ideas and vogues. All the same, we question—along with modernist writer Yu# Ryu#tanji—the “critique that says modanizumu is nothing more than the latest display of imported cosmetics” (1930). We seek to develop a correspondingly nuanced picture of the specific and changing ways in which Japan understood and figured its relationship to the rest of the world through the course of a century. All readings will be in translation, however there will be an opportunity to read short stories in the original language. HU

* **EALL 269a, Topics in Modern Korean Literature** Lucas Bender

In this course, students read key works of Korean literature in English translation from the early twentieth century to the present day. The specific course topic varies by semester. Primary sources include long-form novels, short stories, poetry, and nonfiction writing by representative authors, as well as literary scholarship on themes and historical context relevant to the materials. The readings in this course are arranged in roughly chronological order, requiring us to examine Korea’s colonial modernization process in the first half of the twentieth century, the authoritarian regimes of South Korea from 1948 to 87, and South Korea’s integration into the neoliberal world order after democratization. Supplementary audio-visual materials such as artwork, video clips and music may be presented to students in class. All class materials are in English translation, and no previous knowledge of Korean language is required. HU

* **EALL 281b / FILM 304b, Japanese Cinema and Its Others** Aaron Gerow

Critical inquiry into the myth of a homogeneous Japan through analysis of how Japanese film and media historically represents “others” of different races, ethnicities, nationalities, genders, and sexualities, including women, black residents, ethnic Koreans, Okinawans, Ainu, undocumented immigrants, LGBTQ minorities, the disabled, youth, and monstrous others like ghosts. HU

* **EALL 288a / EAST 316a / LITR 303a / RSEE 316a / RUSS 316a, Socialist '80s:**

Aesthetics of Reform in China and the Soviet Union Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today’s America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU

* **EALL 296b / EAST 391b / RLST 121b, Religion and Culture in Korea** Hwansoo Kim

Introduction to Shamanism, Buddhism, Confucianism, Daoism, Christianity, and new religions in Korea from ancient times to the present. Examination of religious traditions in close relationships with social, economic, political, and cultural environments in

Korean society. Examination of religious tensions, philosophical arguments, and ethical issues that indigenous and foreign religions in Korea have engaged throughout history to maximize their influence in Korean society. HU

* **EALL 300a / EAST 340a, Sinological Methods** Pauline Lin

A research course in Chinese studies, designed for students with background in modern and literary Chinese. Explore and evaluate the wealth of primary sources and research tools available in China and in the West. For native speakers of Chinese, introduction to the secondary literature in English and instruction in writing professionally in English on topics about China. Topics include Chinese bibliographies; bibliophiles' notes; specialized dictionaries; maps and geographical gazetteers; textual editions, variations and reliability of texts; genealogies and biographical sources; archaeological and visual materials; and major Chinese encyclopedias, compendia, and databases. Prerequisite: CHNS 171 or equivalent. Formerly CHNS 202. HU

EALL 308a / PHIL 341a, Sages of the Ancient World Mick Hunter

Comparative survey of ancient discourses about wisdom from China, India, the Near East, Egypt, Greece, and Rome. Topics include teaching, scheming, and dying. HU

* **EALL 470a or b and EALL 471a or b, Independent Tutorial** Lucas Bender

For students with advanced Chinese, Japanese, or Korean language skills who wish to engage in concentrated reading and research on literary works in a manner not otherwise offered in courses. The work must be supervised by a specialist and must terminate in a term paper or its equivalent. Ordinarily only one term may be offered toward the major or for credit toward the degree. Permission to enroll requires submission of a detailed project proposal by the end of the first week of classes and its approval by the director of undergraduate studies.

* **EALL 491a or b, Senior Essay** Lucas Bender

Preparation of a one-term senior essay under faculty supervision.

* **EALL 492a or b and EALL 493a or b, Yearlong Senior Essay** Lucas Bender

Preparation of a two-term senior essay under faculty supervision. Credit for EALL 492 only on completion of EALL 493.

East Asian Studies (EAST)

* **EAST 016a / HSAR 016a, Chinese Painting and Culture** Quincy Ngan

This course focuses on important works of Chinese painting and major painters from the fourth century CE to the twentieth century. Through close readings of the pictorial contents and production contexts of such works of art, this course investigates the works' formats, meanings, and innovations from social, historical, and art-historical perspectives. In this course, students become familiar with the traditional Chinese world and acquire the knowledge necessary to be an informed viewer of Chinese painting. Discussions of religion, folkloric beliefs, literature, relationships between men and women, the worship of mountains, the laments of scholars, and the tastes of emperors and wealthy merchants also allow students to understand the cultural roots of contemporary China. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **EAST 030a / HIST 030a, Tokyo** Daniel Botsman

Four centuries of Japan's history explored through the many incarnations, destructions, and rebirths of its foremost city. Focus on the solutions found by Tokyo's residents to the material and social challenges of concentrating such a large population in one place. Tensions between continuity and impermanence, authenticity and modernity, and social order and the culture of play. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

EAST 220a / HIST 321a, China from Present to Past Staff

Underlying causes of current issues facing China traced back to their origins in the premodern period. Topics include economic development, corruption, environmental crises, gender, and Pacific island disputes. Selected primary-source readings in English, images, videos, and Web resources. Preference given to first years and sophomores.

WR, HU o Course cr

EAST 237b / HSAR 237b, Arts of China Quincy Ngan

Arts of China is a window to the nation's history, culture, society, and aesthetics. This course introduces the visual arts of China from the prehistoric period to the twentieth century. We look at the archaeological findings (including pottery, jade, and bronze vessels) as well as ancestor worship and belief in posthumous souls and immortal mountains. We look at the art and architecture inspired by Buddhism, Taoism, and Confucianism. We investigate the place of Chinese painting and calligraphy in court and elite cultures and explore how these arts intertwine with politics, printing culture, and popular culture. Lastly, we investigate the decorative arts, like ceramics, textiles, and furniture, as well as the art and architecture that reflect foreign tastes. HU

o Course cr

EAST 240a / CHNS 200a / EALL 200a / HUMS 270a, The Chinese Tradition Staff

An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU o Course cr

* **EAST 242b / EALL 230b / HUMS 269b / LITR 238b, Poetry and Ethics Amidst Imperial Collapse** Lucas Bender

Du Fu has for the last millennium been considered China's greatest poet. Close study of nearly one-sixth of his complete works, contextualized by selections from the tradition that defined the art in his age. Exploration of the roles literature plays in interpreting human lives and the ways different traditional forms shape different ethical orientation. Poetry as a vehicle for moral reflection. All readings are in English. WR, HU

* **EAST 253b / EALL 265b / LITR 251b, Japanese Literature after 1970** Rosa van Hensbergen

This course is an introduction to Japanese literature written in the last fifty years, with a focus on women writers. We read poetry and prose featuring mothers, daughters, and lovers, novels that follow convenience and thrift store workers, and poetry about factory girls. Our reading takes us from the daily grind of contemporary Tokyo to dystopian futures, from 1970s suburbia to surreal dreamscapes. We attend carefully

to the ways in which different writers craft their works and, in particular, to their representation of feelings and affects. Whether the dull ache of loneliness, the oppression of boredom or the heavy weight of fatigue, it is often something about the mood of a work—rather than its narrative—that leaves a distinct impression. We develop the tools to analyze and discuss this sense of distinctness, as well as discover ways to stage connections and comparisons between the works we read. HU

*** EAST 304b / HIST 304Jb, Japanese Historical Documents** Daniel Botsman
Few pre-industrial societies anywhere in the world have bequeathed us a body of historical documents as varied and plentiful as those Tokugawa Japan (1600-1867). This class offers students who already have a solid command of modern Japanese an introduction to these remarkable sources, focusing particularly on what they can teach us about life in the great cities of Edo (now Tokyo), Osaka, and Kyoto—three of the largest urban centers anywhere in the pre-industrial world. Prerequisite: JAPN 140 or equivalent.

EAST 310b / GLBL 309b / PLSC 357b, The Rise of China Daniel Mattingly
Analysis of Chinese domestic and foreign politics, with a focus on the country's rise as a major political and economic power. Topics include China's recent history, government, ruling party, technology, trade, military, diplomacy, and foreign policy.
SO o Course cr

*** EAST 313a / ANTH 213a, Contemporary Japan and the Ghosts of Modernity**
Yukiko Koga
This course introduces students to contemporary Japan, examining how its defeat in the Second World War and loss of empire in 1945 continue to shape Japanese culture and society. Looking especially at the sphere of cultural production, it focuses on the question of what it means to be modern as expressed through the tension between resurgent neonationalism and the aspiration to internationalize. The course charts how the legacy of Japan's imperial failure plays a significant role in its search for renewal and identity since 1945. How, it asks, does the experience of catastrophic failure—and failure to account for that failure—play into continued aspirations for modernity today? How does Japanese society wrestle with modernity's two faces: its promise for progress and its history of catastrophic violence? The course follows the trajectory of Japan's postwar nation-state development after the dissolution of empire, from its resurrection out of the ashes after defeat, to its identity as a US ally and economic superpower during the Cold War, to decades of recession since the 1990s and the search for new relations with its neighbors and new reckonings with its own imperial violence and postwar inactions against the background of rising neonationalism. HU, SO

*** EAST 316a / EALL 288a / LITR 303a / RSEE 316a / RUSS 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu
This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today's America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity,

nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

* **EAST 324a / ANTH 324a / ANTH 824a, Politics of Memory** Yukiko Koga

This course explores the role of memory as a social, cultural, and political force in contemporary society. How societies remember difficult pasts has become a contested site for negotiating the present. Through the lens of memory, we examine complex roles that our relationships to difficult pasts play in navigating issues we face today. This course explores this politics of memory that takes place in the realm of popular culture and public space. The class asks such questions as: How do you represent difficult and contested pasts? What does it mean to enable long-silenced victims' voices to be heard? What are the consequences of re-narrating the past by highlighting past injuries and trauma? Does memory work heal or open wounds of a society and a nation? Through examples drawn from the Holocaust, the atomic bombing in Hiroshima, the Vietnam War, genocide in Indonesia and massacres in Lebanon, to debates on confederacy statues, slavery, and lynching in the US, this course approaches these questions through an anthropological exploration of concepts such as memory, trauma, mourning, silence, voice, testimony, and victimhood. HU, SO

* **EAST 340a / EALL 300a, Sinological Methods** Pauline Lin

A research course in Chinese studies, designed for students with background in modern and literary Chinese. Explore and evaluate the wealth of primary sources and research tools available in China and in the West. For native speakers of Chinese, introduction to the secondary literature in English and instruction in writing professionally in English on topics about China. Topics include Chinese bibliographies; bibliophiles' notes; specialized dictionaries; maps and geographical gazetteers; textual editions, variations and reliability of texts; genealogies and biographical sources; archaeological and visual materials; and major Chinese encyclopedias, compendia, and databases. Prerequisite: CHNS 171 or equivalent. Formerly CHNS 202. HU

* **EAST 346a / ANTH 342a, Cultures and Markets in Asia** Helen Siu

Historical and contemporary movements of people, goods, and cultural meanings that have defined Asia as a region. Reexamination of state-centered conceptualizations of Asia and of established boundaries in regional studies. The intersections of transregional institutions and local societies and their effects on trading empires, religious traditions, colonial encounters, and cultural fusion. Finance flows that connect East Asia and the Indian Ocean to the Middle East and Africa. The cultures of capital and market in the neoliberal and postsocialist world. SO

EAST 364b / HIST 364b, Modern China Denise Ho

Today's China is one of the world's great powers, and the relationship between the United States and China is one of the most consequential of our times. Yet we cannot understand China without examining the historical context of its rise. How have the Chinese searched for modernity in the recent past? How were the dramatic changes of the late imperial period, the twentieth century, and after experienced by the Chinese people? This introductory course examines the political, social, and cultural revolutions that have shaped Chinese history since late imperial times. The emphasis of this course is on the analysis of primary sources in translation and the discussion of these texts

within the context of the broader historical narrative. It assumes no prior knowledge of Chinese history. HU o Course cr

* **EAST 390b / RLST 102b, Atheism and Buddhism** Hwansoo Kim

A critical examination of atheism and religions (Buddhism), with a focus on intellectual, religious, philosophical, and scientific debates about God, the origin of the universe, morality, evolution, neuroscience, happiness, enlightenment, the afterlife, and karma. Readings selected from philosophical, scientific, and religious writings. Authors include some of the following: Charles Darwin, Bertrand Russell, Christopher Hitchens, Richard Dawkins, Deepak Chopra, Sam Harris, Owen Flanagan, Stephen Batchelor, and the Dalai Lama. HU

* **EAST 391b / EALL 296b / RLST 121b, Religion and Culture in Korea** Hwansoo Kim

Introduction to Shamanism, Buddhism, Confucianism, Daoism, Christianity, and new religions in Korea from ancient times to the present. Examination of religious traditions in close relationships with social, economic, political, and cultural environments in Korean society. Examination of religious tensions, philosophical arguments, and ethical issues that indigenous and foreign religions in Korea have engaged throughout history to maximize their influence in Korean society. HU

* **EAST 400a / RLST 366a, Religion and Politics in China, Xinjiang, and Tibet** Staff

This course explores the religious and political interactions among the Chinese, Tibetans, Mongolians, and Muslims living in today's northwest China from the fourteenth to the twentieth century. Focusing on parallel spatial arrangements and historical narratives of these ethnoculturally diverse peoples, the first part of this course investigates the evolving political systems, religious institutions, and social structures in China, Xinjiang and Tibet. Shifting from the center-periphery perspective to the bottom-up perspective, the second part examines major issues associated with interethnic relations. We critically read both primary and secondary sources. Key themes include Chinese imperialism and colonialism, Tibetan Buddhist expansion, Mongolian conquest, Islamization and Muslim resettlement, transregional trade, frontier militarization, ethnic violence, and inter-ethnocultural accommodation. HU

* **EAST 401b / RLST 343b, Tibetan Buddhism** Staff

This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet. HU

* **EAST 402a / PLSC 384a, Political Psychology and Comparative Politics** Staff

Political psychology seminars typically focus on American political behavior, and most comparative politics seminars do not directly address political psychology. This seminar aims to bridge that gap by examining the important role of psychology within the broader context of comparative politics. The goal of the seminar is to develop your knowledge and understanding of how political attitudes and behaviors are shaped, how they evolve, and the ways they may influence behavioral outcomes. We explore why people engage in politics, what factors help them form or revise their political beliefs and perspectives, and how those attitudes are manifest (or not) through political

action. The role of individual personality traits, human cognition, and both individual and collective identity are considered—in relation to both the general public as well as political insiders. (We also discuss whether making a distinction between the two is relevant and necessary.) Since the course focuses on comparative politics, it closely examines ways that diverse institutions, cultural values, and social environments affect individual political attitudes. We also explore whether there are universal political behaviors and attitudes—and if so, how they should be identified and studied. so

*** EAST 403b / HIST 310b, Law and Order in East Asia to 1800** Staff

Law is not only a practical instrument but has also shaped East Asian civilization. In implementing the governance blueprints of rulers and thinkers, law formulated the operations of East Asian empires and kingdoms, as well as their people's life in nearly all aspects. This course introduces students to the law and legal systems in premodern East Asia. Starting with early legal theories, it explores the traditional East Asian ideas of 'justice' and how the law attempted to achieve them under imperial rule and major religious beliefs. By careful and critical reading of premodern codes and court cases, we also seek to trace the life experiences of commoners under such laws and systems. We try to understand the conflicts and tensions among the people through their frustrations in disputes, their pains in different kinds of violence, and other issues. HU

*** EAST 404a / EALL 237a / FILM 399a, Nuclear Disasters and Trauma in Japanese Cinema and Beyond** Staff

This course examines the ways nuclear disasters are depicted in contemporary Japanese cinema. More specifically, we look at atomic bombings in Hiroshima and Nagasaki (1945), and the Fukushima Daiichi Nuclear Disaster (2011), and how the dormant trauma towards nuclear power has influenced Japanese cinema/media. As the artists portraying disasters often face the limits of representation, their works raise the following questions: how can cinema depict disasters that are indescribable in nature? How might cinema cause or resist tendencies towards post-catastrophic nationalism? In what ways can cinema address disaster that other forms of media cannot? What filmic techniques can be used to dramatize disastrous moments? Can cinema “foresee” unfolding or upcoming disasters? While considering these questions, this course also introduces the methodologies to write/discuss about film as an art form by examining different cinematic elements such as visual, sound, narrative, performance, and touch. HU

*** EAST 405b / RLST 235 / RLST 410b, Buddhism and Violence** Staff

This course focuses on Buddhism and violence in the modern world, with a particular emphasis on Korean Buddhism. Buddhism is often perceived to be a pacifist religion; however, all across the modern Buddhist world, from Japanese Zen Buddhists during World War II, to Vietnamese Buddhists during the Vietnam War, to Buddhists in the contemporary United States, Buddhists have been complicit in and even supported state-sanctioned violence. Can Buddhism be deemed less (or more) violent than other major religions? We cover introductory topics on Buddhism, going back in history to see the fundamental philosophical debates on violence and killing in the tradition. Using Korean Buddhism as a case study, we explore in what ways, if any, these ancient debates relate to the modern world. HU

*** EAST 406b / HSAR 352b, Introduction to Central Asian Art and Architecture** Staff

Overview of the art and architecture of Central Asia including Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, and Tajikistan, in addition to Afghanistan and Xinjiang,

from the Late Antiquity to the modern day. Examination of artistic, architectural-urban transformations as a reflection of the broader societal and cultural change. Through readings, we challenge ourselves 1) to reconsider some of the prevailing understandings of Central Asian history/art & architectural history and 2) to perceive the built environment as an artifact that uncovers secrets and affirms political, social, cultural, and economic aspects of the human past. Throughout, we focus on interactions across the Eurasian continent among Sogdians, Turks, Persians, Arabs, Chinese, Mongolian nomads, and Russians during the last millennium and a half, to understand how these cultures shaped Central Asian urban landscapes, art, and architectural styles. Previous knowledge of Central Asian history is helpful but by no means necessary. Previous knowledge of Art & Architectural history is helpful but by no means necessary. HU

* **EAST 410a / EALL 234a, Japanese Detective Fiction** Staff

This class offers an overview of modern Japanese literature with a focus on detective fiction. Through detective fiction we can examine key concepts in literature such as narrative voice, point of view, genre, modernism and postmodernism, and learn about debates in Japanese literature, the distinction between highbrow and popular fiction, and the relation between Japanese literature and translated fiction. Detective fiction also allows for the exploration of key issues in Japanese history and society such as consumerism, colonialism, class, gender, and sexuality. Readings include a wide range of texts by canonical and popular writers, as well as theoretical texts on genre and detective fiction. All texts are available in English and no prior knowledge of Japanese or Japan is needed. HU

* **EAST 411a / HSAR 415a / WGSS 412a, Women and Art in Premodern East Asia**
Staff

For over a thousand years, women in East Asia profoundly influenced the development of the visual arts, yet their formidable presence remains largely hidden. This seminar explores the critical roles women played as patrons, artists, and collectors of the arts in China, Korea, and Japan. We cover periods from the sixth through the nineteenth centuries and discuss a wide array of mediums including bamboo paintings, bijinga woodblock prints, bronze Buddhist sculptures, bojagi textiles, and even embroidered lotus shoes. This seminar focuses particularly on art objects made by anonymous women as a means to rethink and problematize the traditionally elite and male-dominated art historical canon. We also contextualize artistic production in light of emergent theorizations and readings on femininity, feminism, and the sexual politics of representation. Major themes of inquiry include subjectivity and intentionality; representations of women and the male gaze; and postcolonial definitions of female agency. No prior knowledge of East Asian art history is required or assumed. HU

* **EAST 417b / ANTH 414b, Hubs, Mobilities, and World Cities** Helen Siu
Analysis of urban life in historical and contemporary societies. Topics include capitalist and postmodern transformations; class, gender, ethnicity, and migration; and global landscapes of power and citizenship. . SO RP o Course cr

* **EAST 427a / HSAR 427a, Chinese Skin Problems** Quincy Ngan

This seminar uses artwork as a means of understanding the various skin problems faced by contemporary Chinese people. Divided into four modules, this seminar first traces how the “ideal skin” as a complex trope of desire, superficiality, and deception has evolved over time through the ghost story, *Painted Skin (Huapi)*, and its countless spin-offs. Second, the course explores how artists have overcome a variety of social distances

and barriers through touch; we look at artworks that highlight the healing power and erotic associations of cleansing, massaging, and moisturizing the skin. Third, we explore the relationship between feminism and gender stereotypes through artworks and performances that involve skincare, makeup and plastic surgery. Fourth, the course investigates the dynamics between “Chineseness,” colorism, and racial tensions through the artworks produced by Chinese-American and diasporic artists. Each module is comprised of one meeting focusing on theoretical frameworks and two meetings focusing on individual artists and close analysis of artworks. Readings include Cathy Park Hong’s *Minor Feelings*, Nikki Khanna’s *Whiter*, and Leta Hong Fincher’s *Leftover Women*. HU

* **EAST 431a / RLST 175a, North Korea and Religion** Hwansoo Kim

Ever since the establishment of the Democratic People’s Republic of Korea (DPRK) in 1948 and the Korean War (1950–1953), North Korea has been depicted by the media as a reclusive, oppressive, and military country, its leaders as the worst dictators, and its people as brainwashed, tortured, and starving to death. The still ongoing Cold War discourse, intensified by the North Korea’s recent secret nuclear weapons program, furthers these negative images, and outsiders have passively internalized these images. However, these simplistic characterizations prevent one from gaining a balanced understanding of and insight into North Korea and its people on the ground. Topics other than political, military, and security issues are rarely given attention. On the whole, even though North Korea’s land area is larger than South Korea and its population of 25 million accounts for a third of all Koreans, North Korea has been neglected in the scholarly discussion of Korean culture. This class tries to make sense of North Korea in a more comprehensive way by integrating the political and economic with social, cultural, and religious dimensions. In order to accomplish this objective, students examine leadership, religious (especially cultic) aspects of the North Korean Juche ideology, the daily lives of its citizens, religious traditions, the Korean War, nuclear development and missiles, North Korean defectors and refugees, human rights, Christian missionary organizations, and unification, among others. Throughout, the course places North Korean issues in the East Asian and global context. The course draws upon recent scholarly books, articles, journals, interviews with North Korean defectors, travelogues, media publications, and visual materials. SO

* **EAST 470a or b, Independent Study** Valerie Hansen

For students with advanced Chinese, Japanese, or Korean language skills who wish to pursue a close study of the East Asia region, not otherwise covered by departmental offerings. May be used for research, a special project, or a substantial research paper under faculty supervision. A term paper or its equivalent and regular meetings with an adviser are required. Ordinarily only one term may be offered toward the major or for credit toward the degree. Permission to enroll requires submission of a detailed project proposal, signed by the adviser, by the end of the first week of classes and its approval by the director of undergraduate studies.

EAST 480a or b, One-Term Senior Essay Valerie Hansen

Preparation of a one-term senior essay under the guidance of a faculty adviser. Students must receive the prior agreement of the director of undergraduate studies and of the faculty member who will serve as the senior essay adviser. Students must arrange to meet with that adviser on a regular basis throughout the term.

*** EAST 491a and EAST 492b, Senior Research Project** Valerie Hansen

Two-term directed research project under the supervision of a ladder faculty member. Students should write essays using materials in East Asian languages when possible. Essays should be based on primary material, whether in an East Asian language or English. Summary of secondary material is not acceptable. Credit for EAST 491 only on completion of EAST 492. ½ Course cr per term

Ecology & Evolutionary Biology (E&EB)

*** E&EB 106a / HLTH 155a / MCDB 106a, Biology of Malaria, Lyme, and Other Vector-Borne Diseases** Alexia Belperron

Introduction to the biology of pathogen transmission from one organism to another by insects; special focus on malaria, dengue, and Lyme disease. Biology of the pathogens including modes of transmission, establishment of infection, and immune responses; the challenges associated with vector control, prevention, development of vaccines, and treatments. Intended for non-science majors; preference to first-years and sophomores. Prerequisite: high school biology. SC

E&EB 210a / S&DS 101a, Introduction to Statistics: Life Sciences Jonathan Reuning-Scherer

Statistical and probabilistic analysis of biological problems, presented with a unified foundation in basic statistical theory. Problems are drawn from genetics, ecology, epidemiology, and bioinformatics. QR

E&EB 220a / EVST 223a, General Ecology Staff

The theory and practice of ecology, including the ecology of individuals, population dynamics and regulation, community structure, ecosystem function, and ecological interactions at broad spatial and temporal scales. Topics such as climate change, fisheries management, and infectious diseases are placed in an ecological context. Prerequisite: MATH 112 or equivalent. SC o Course cr

E&EB 223Lb, Laboratory for Principles of Ecology, Evolutionary Biology, and the Tree of Life Marta Wells

Study of evolutionary novelties, their functional morphology, and their role in the diversity of life. Introduction to techniques used for studying the diversity of animal body plans. Evolutionary innovations that have allowed groups of organisms to increase their diversity. SC o Course cr

E&EB 225b, Evolutionary Biology Staff

An overview of evolutionary biology as the discipline uniting all of the life sciences. Reading and discussion of scientific papers to explore the dynamic aspects of evolutionary biology. Principles of population genetics, paleontology, and systematics; application of evolutionary thinking in disciplines such as developmental biology, ecology, microbiology, molecular biology, and human medicine. SC o Course cr

E&EB 228b, Ecology and Evolution of Infectious Diseases Paul Turner and Vanessa Ezenwa

Overview of the ecology and evolution of pathogens (bacteria, viruses, protozoa) and their impact on host populations. Topics include theoretical concepts, ecological and evolutionary dynamics, molecular biology, and epidemiology of ancient and emerging diseases. Prerequisite: BIOL 104 or permission of instructor. SC

E&EB 250a, Biology of Terrestrial Arthropods Marta Wells

Evolutionary history and diversity of terrestrial arthropods (body plan, phylogenetic relationships, fossil record); physiology and functional morphology (water relations, thermoregulation, energetics of flying and singing); reproduction (biology of reproduction, life cycles, metamorphosis, parental care); behavior (migration, communication, mating systems, evolution of sociality); ecology (parasitism, mutualism, predator-prey interactions, competition, plant-insect interactions). To be taken concurrently with E&EB 251L. SC

E&EB 251La, Laboratory for Biology of Terrestrial Arthropods Marta Wells

Comparative anatomy, dissections, identification, and classification of terrestrial arthropods; specimen collection; field trips. Concurrently with or after E&EB 250. SC
o Course cr

E&EB 255a, Invertebrates Casey Dunn

An overview of animal diversity that explores themes including animal phylogenetics (evolutionary relationships), comparative studies of evolutionary patterns across species, organism structure and function, and the interaction of organisms with their environments. Most animal lineages are marine invertebrates, so marine invertebrates are the focus of most of the course. E&EB 256L is not required to enroll in the lecture. SC

E&EB 256La, Laboratory for Invertebrates Casey Dunn

The study of invertebrate anatomy and diversity in a laboratory and field setting. Activities will include will examine live animals and museum specimens, as well as local field trips. Some field trips will fall on weekends. This lab must be taken concurrently with the lecture E&EB 255. SC ½ Course cr

*** E&EB 269a, Bird Behavior** Richard Prum

A seminar discussion of classic and recent scientific literature on topics in bird behavior. Students develop experience in critical reading of the literature through the exploration of topics in bird behavior including courtship, breeding behavior, song and song learning, foraging ecology, migration and orientation, and sensory ecology. Prerequisite: BIOL 104 or permission of the instructor. SC

E&EB 290b, Comparative Developmental Anatomy of Vertebrates Staff

A survey of the development, structure, and evolution of major vertebrate groups. Topics include the micro-anatomy of major organ systems, the developmental underpinnings of the vertebrate body plan, and the development, structure, and evolution of the major organ systems such as the locomotory system, sensory organs, digestive tract, reproductive tract, and nervous system. SC

E&EB 291Lb, Comparative Anatomy of Vertebrates Laboratory Staff

Microscopic examination of histological and embryological preparations. Dissection of selected vertebrate species including shark, bony fish, frog, lizard, and rat. To be taken with E&EB 290. SC ½ Course cr

E&EB 295a, Life in Motion: Ecological and Evolutionary Physiology Joshua Moyer

Physiology is the study of the functions that organisms perform and how they use those functions to interact with the environment. To survive, grow, and reproduce, all organisms must acquire energy and avoid conditions that exceed their physiological limits. These interactions all involve motion—ions traveling across membranes, muscle fibers twitching, respiration, and locomotion, to name a few. In this course, we tackle

physiological processes from both “bottom up” and “top down” approaches, with integration among these dimensions, to extract general physiological rules of life. Then, we link our discoveries to the broader context of ongoing global change, and consider whether and how organisms can physiologically respond to contemporary selective pressures. While the course focuses heavily on animal physiology, plants, fungi, and microbes are also featured. Prerequisites: BIOL 101, 102, 103, 104, and CHEM 161, or permission of the instructor. SC

E&EB 320b, Community Ecology David Vasseur

This course covers core questions in community ecology related to species interactions, species coexistence theory, species-environment interactions, the consequences of biological diversity, spatial ecology, food webs, and eco-evolutionary interactions.

Lectures emphasize the theoretical and conceptual foundations of these topics and incorporate the empirical and experimental evidence supporting and confronting contemporary views. Prerequisites: E&EB 220 or EVST 223, or with permission of instructor. SC

E&EB 322a, Evolutionary Genetics Jennifer Coughlan

Genetic variation is the currency by which natural selection is translated into evolutionary change. In this course we dissect patterns of genetic variation using an evolutionary mindset to ultimately understand what shapes genetic variation in nature and the potential for species to adapt to new and changing environments. This class unites two foundational fields of evolutionary genetics; quantitative genetics (the study of the genetic basis of complex traits) and population genetics (the study of gene variant frequencies across time and space), with an ultimate goal of understanding evolutionary change in nature. Although this course is lecture based, there is much opportunity for hands-on learning. Students use real-life and simulated genetic data to map the genetic basis of traits and investigate the evolutionary forces responsible for shaping genetic variation in nature. We also discuss how quantitative and population genetics theory are applied to the modern genomic era, particularly in the context of detecting genomic signatures of adaptation. Lastly, we discuss the application of evolutionary genetics to human populations, including the usefulness and missteps of these applications for science and society. Prerequisite: E&EB 225, Evolutionary Biology. SC

* **E&EB 335a / HLTH 250a, Evolution and Medicine** Brandon Ogbunu

Introduction to the ways in which evolutionary science informs medical research and clinical practice. Diseases of civilization and their relation to humans' evolutionary past; the evolution of human defense mechanisms; antibiotic resistance and virulence in pathogens; cancer as an evolutionary process. Students view course lectures on line; class time focuses on discussion of lecture topics and research papers. Prerequisite: BIOL 101-104. WR, SC

E&EB 375a, Topics in Vertebrate Ecomorphology Joshua Moyer

Ecomorphology is a field that bridges ecology and evolutionary biology. Researchers studying organisms' ecomorphology ask questions like, “What does the morphology of an organism tell us about its relationship with its environment” and “How are correlations between morphology and ecology influenced by behavior?” The answers to questions like these inform evolutionary hypotheses based on natural selection and help to explain the amazing diversity of life forms that surround us. In this course, we explore the links between organismal form, function, ecology, and evolution

using a series of readings and guided discussions. Students also learn many of the fundamentals associated with crafting and revising publishable scientific writing—a must for those seeking research-based graduate education in the sciences. By the end of the semester, students refine their critical thinking and scientific writing skills, and they have a newfound awareness of one of the most integrative and fascinating branches of vertebrate biology. Prerequisites: BIOL 101, 102, 103, and 104 SC

E&EB 464a or b / ANTH 464a or b / ARCG 464a or b, Human Osteology Eric Sargis
A lecture and laboratory course focusing on the characteristics of the human skeleton and its use in studies of functional morphology, paleodemography, and paleopathology. Laboratories familiarize students with skeletal parts; lectures focus on the nature of bone tissue, its biomechanical modification, sexing, aging, and interpretation of lesions.
SC, SO o Course cr

*** E&EB 469a or b, Tutorial** Marta Wells

Individual or small-group study for qualified students who wish to investigate an area of ecology or evolutionary biology not presently covered by regular courses. A student must be sponsored by a faculty member who sets requirements and meets weekly with the student. One or more written examinations and/or a term paper are required.

To register, the student must submit a written plan of study approved by the faculty instructor to the director of undergraduate studies. Students are encouraged to apply during the term preceding the tutorial. Proposals must be submitted no later than the first day of the second week of the term in which the student enrolls in the tutorial. The final paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment. In special cases, with approval of the director of undergraduate studies, this course may be elected for more than one term, but only one term may be counted as an elective toward the requirements of the major. Normally, faculty sponsors must be members of the EEB department.

*** E&EB 470a or b, Senior Tutorial** Marta Wells

Tutorial for seniors in the B.A. degree program who elect a term of independent study to complete the senior requirement. A thesis, fifteen to twenty pages in length, is required. A student must be sponsored by a faculty member who sets requirements and meets weekly with the student. To register, the student must submit a written plan of study approved by the faculty instructor to the director of undergraduate studies. Students are encouraged to apply during the term preceding the tutorial. Proposals must be submitted no later than the first day of the second week of the term in which the student enrolls in the tutorial. The final paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment. Normally, faculty sponsors must be members of the EEB department. Enrollment limited to seniors. Fulfills the senior requirement for the B.A. degree.

*** E&EB 474a or b, Research** Marta Wells

One term of original research in an area relevant to ecology or evolutionary biology. This may involve, for example, laboratory work, fieldwork, or mathematical or computer modeling. Students may also work in areas related to environmental biology such as policy, economics, or ethics. The research project may not be a review of relevant literature but must be original. In all cases students must have a faculty sponsor who oversees the research and is responsible for the rigor of the project. Students are expected to spend ten hours per week on their research projects. Using the form available from the office of undergraduate studies or from the Canvas, students

must submit a research proposal that has been approved by the faculty sponsor to the director of undergraduate studies, preferably during the term preceding the research. Proposals are due no later than the first day of the second week of the term in which the student enrolls in the course. The final research paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment.

*** E&EB 475a and E&EB 476b, Senior Research** Marta Wells

One term of original research in an area relevant to ecology or evolutionary biology. This may involve, for example, laboratory work, fieldwork, or mathematical or computer modeling. Students may also work in areas related to environmental biology such as policy, economics, or ethics. The research project may not be a review of relevant literature but must be original. In all cases students must have a faculty sponsor who oversees the research and is responsible for the rigor of the project. Students are expected to spend ten hours per week on their research projects. Using the form available from the office of undergraduate studies or from the Canvas, students must submit a research proposal that has been approved by the faculty sponsor to the director of undergraduate studies, preferably during the term preceding the research. Proposals are due no later than the first day of the second week of the term in which the student enrolls in the course. The final research paper is due in the hands of the director of undergraduate studies by the last day of classes in the term of enrollment. Fulfills the senior requirement for the B.S. degree. Enrollment limited to seniors.

*** E&EB 495a and E&EB 496b, Intensive Senior Research** Marta Wells

One term of intensive original research during the senior year under the sponsorship of a Yale faculty member. Similar to other research courses except that a more substantial portion of a student's time and effort should be spent on the research project (a minimum average of twenty hours per week). A research proposal approved by the sponsoring faculty member must be submitted to the director of undergraduate studies; forms are available from the office of undergraduate studies. For research in the fall term, approval is encouraged during the spring term of the junior year. Proposals are due no later than the first day of the second week of the term in which the student enrolls in the course. The final research paper is due in the hands of the director of undergraduate studies by the last day of reading period in the term of enrollment. One term of intensive research fulfills a portion of the senior requirement for the B.S. degree. 2 Course cr per term

Economics (ECON)

*** ECON 001b, Economic Ideas Worth a Nobel Prize** Jose-Antonio Espin-Sanchez

This course introduces students to a selection of ideas that in the past fifty years have merited a Nobel Prize in economics. The goal of the course is twofold. First, it serves as an introduction to a wide range of economic topics. Second, by studying the most influential economic ideas, students learn firsthand how economic science has evolved. The course is not structured chronologically, but according to economic areas, such as microeconomics, macroeconomics, finance, poverty, and the environment. No prior knowledge of economics or statistics is assumed. Enrollment limited to first-year students. SO

* **ECON 002b, Social Issues in America** Rebecca Toseland

This seminar investigates how data and economics can be used to understand and solve some of the most pressing contemporary social issues in the United States. Topics include equality of opportunity, education, health, climate change, criminal justice, and discrimination. In the context of these topics, the course provides an introduction to some basic economic concepts and data analysis techniques. No prior knowledge of economics or statistics is assumed. Enrollment limited to first-year students. SO

* **ECON 108a or b, Quantitative Foundations of Microeconomics** Tolga Koker

Introductory microeconomics with a special emphasis on quantitative methods and examples. Intended for students with limited or no experience with calculus. Enrollment limited. May not be taken after ECON 110 or 115. QR, SO

* **ECON 110a or b, An Introduction to Microeconomic Analysis** Staff

Similar to ECON 115, but taught as a lecture discussion with limited enrollment. Enrollment limited to first-years and sophomores. May not be taken after ECON 108 or 115. QR, SO

* **ECON 111a or b, An Introduction to Macroeconomic Analysis** Staff

Similar to ECON 116, but taught as a lecture discussion with limited enrollment. Enrollment limited to first-years and sophomores. May not be taken after ECON 116. Prerequisite: ECON 108, 110, or 115. SO

ECON 115a or b, Introductory Microeconomics Staff

An introduction to the basic tools of microeconomics to provide a rigorous framework for understanding how individuals, firms, markets, and governments allocate scarce resources. The design and evaluation of public policy. May not be taken after ECON 108 or 110. QR, SO o Course cr

ECON 116a or b, Introductory Macroeconomics Staff

An introduction that stresses how the macroeconomy works, including the determination of output, unemployment, inflation, interest rates, and exchange rates. Economic theory is applied to current events. May not be taken after ECON 111. Prerequisite: ECON 108, 110, or 115. SO o Course cr

ECON 117a or b, Introduction to Data Analysis and Econometrics Staff

Introduction to data analysis from the beginning of the econometrics sequence; exposure to modern empirical economics; and development of credible economic analysis. This course emphasizes working directly and early with data, through such economic examples as studies of environmental/natural resource economics, intergenerational mobility, discrimination, and finance. Topics include: probability, statistics, and sampling; selection, causation and causal inference; regression and model specification; and machine learning and big data. Prerequisites: ECON 108, 110, 115, or equivalent and familiarity with single variable calculus. Students who have taken ECON 131 may not receive major credit for this course. QR, SO o Course cr

ECON 121a or b, Intermediate Microeconomics Staff

The theory of resource allocation and its applications. Topics include the theory of choice, consumer and firm behavior, production, price determination in different market structures, welfare, and market failure. After introductory microeconomics and completion of the mathematics requirement for the major or its equivalent. Elementary

techniques from multivariate calculus are introduced and applied, but prior knowledge is not assumed. May not be taken after ECON 125. QR, SO o Course cr

ECON 122a or b, Intermediate Macroeconomics Staff

Contemporary theories of employment, finance, money, business fluctuations, and economic growth. Their implications for monetary and fiscal policy. Emphasis on empirical studies, financial and monetary crises, and recent policies and problems. After two terms of introductory economics and completion of the mathematics requirement for the major or its equivalent. May not be taken after ECON 126. QR, SO o Course cr

ECON 123a or b, Intermediate Data Analysis and Econometrics Staff

Comprehensive and theoretical examination of econometrics, with further exploration of topics covered in ECON 117. A term research project addresses a research question chosen by the student, and involves the application of learned methods to a relevant data set. Prerequisites: ECON 108, 110, 115, or equivalent; ECON 117; and familiarity with single variable calculus. QR, SO o Course cr

ECON 125a, Microeconomic Theory Staff

Similar to ECON 121 but with a more intensive treatment of consumer and producer theory, and covering additional topics including choice under uncertainty, game theory, contracting under hidden actions or hidden information, externalities and public goods, and general equilibrium theory. Recommended for students considering graduate study in economics. After introductory economics, and MATH 118 or 120 or equivalent. May not be taken after ECON 121. QR, SO o Course cr

ECON 135a, Introduction to Probability and Statistics Yusuke Narita

Foundations of mathematical statistics: probability theory, distribution theory, parameter estimation, hypothesis testing, regression, and computer programming. Recommended for students considering graduate study in economics. Prerequisites: Introductory microeconomics and MATH 118 or MATH 120 and MATH 222; or MATH 120 and MATH 225. QR, SO o Course cr

ECON 136b, Econometrics Ed Vytlačil

Continuation of ECON 135 with a focus on econometric theory and practice: problems that arise from the specification, estimation, and interpretation of models of economic behavior. Topics include classical regression and simultaneous equations models; panel data; and limited dependent variables. Recommended for students considering graduate study in economics. Prerequisites: After ECON 135 or STAT 241 and 242. May not be taken concurrently with STAT 242. QR, SO o Course cr

ECON 159a / GLBL 159a, Game Theory Staff

An introduction to game theory and strategic thinking. Ideas such as dominance, backward induction, Nash equilibrium, evolutionary stability, commitment, credibility, asymmetric information, adverse selection, and signaling are applied to games played in class and to examples drawn from economics, politics, the movies, and elsewhere. After introductory microeconomics. No prior knowledge of game theory assumed. QR, SO o Course cr

ECON 170a, Health Economics and Public Policy Howard Forman

Application of economic principles to the study of the U.S. health care system. Emphasis on basic principles about the structure of the U.S. system, current problems,

proposed solutions, and the context of health policy making and politics. After introductory microeconomics. SO

ECON 171b / AFAM 146b / EDST 271b, Urban Inequalities and Educational Inequality Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K-12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. SO

ECON 184b / GLBL 234b, International Economics Samuel Kortum

Introduction to conceptual tools useful for understanding the strategic choices made by countries, firms, and unions in a globalized world. After two terms of introductory economics. SO

* **ECON 185a / GLBL 237a, Global Economy** Sigridur Benediktstottir and Aleh Tsyvinski

A global view of the world economy and the salient issues in the short and the long run. Economics of crises, fiscal policy, debt, inequality, global imbalances, climate change. The course is based on reading, debating, and applying cutting edge macroeconomic research. SO

* **ECON 209a / EP&E 313a, Economic Analysis of Law** Robin Landis

This course is intended to provide an introduction to the economic analysis of law. We examine the economic rationale(s) underlying various legal doctrines of both common law and statutory law, as well as the economic consequences of different legal doctrines. Previous coursework in economics, while helpful, is not a prerequisite for the course. SO

ECON 265a, History of Economic Thought Robert Dimand

The objective of this course is to give an overview of how economic analysis has developed, and an introduction to the varied ways in which some of the great economists of the past have gone about studying how the economy functions. We discuss the relevance of their theories to public policy and the role of the state, and consider the roles of pre-analytic vision, improvements in analytical technique, and external events (such as the Great Depression or Global Financial Crisis) in the development of economic analysis. Prerequisites: ECON 115 and ECON 116. SO

ECON 326b, Fundamentals of Economic Development Kaivan Munshi

The objective of this course is to examine some of the fundamental forces that shape the process of economic development. This course is divided into three sections: (i) Market Failure: with an analysis of credit, labor, and insurance markets in developing countries. (ii) Social Response: how community networks emerge in response to market failure. We study the positive and negative consequences of this community involvement for growth and development; in the short-run and the long-run. We also provide economic foundations for the emergence of social norms and identity, as well as the dynamic inefficiencies that they can generate with economic development.

(iii) Biological Response: how biological adaptation to economic conditions in the pre-modern economy can have negative consequences for nutritional status and health in developing economies. Apart from providing a particular perspective on development, an additional objective of this course demonstrates the use of economic theory in informing empirical research. Prerequisites: Intermediate Microeconomics, Introductory Econometrics and Data Analysis. Students are expected to be familiar with calculus, basic microeconomics, and basic econometrics. SO

ECON 350a, Mathematical Economics: General Equilibrium Theory Staff

An introduction to general equilibrium theory and its application to finance and the theory of money. Recommended for students considering graduate study in economics, or a career in quantitative finance. Prerequisites: After MATH 118 or 120, and intermediate microeconomics. QR, SO o Course cr

ECON 351b, Mathematical Economics: Game Theory Johannes Horner

Introduction to game theory and choice under uncertainty. Analysis of the role of information and uncertainty for individual choice behavior, as well as application to the decision theory under uncertainty. Analysis of strategic interaction among economic agents, leading to the theory of auctions and mechanism design. Recommended for students considering graduate study in economics. After MATH 118, 120, and intermediate microeconomics. QR, SO o Course cr

* **ECON 360a, Capital Markets** Gary Gorton

Topics related to capital markets, with emphasis on the financial crisis of 2007–2008. The design, pricing, and trading of corporate bonds, credit derivatives, and money market instruments; bond restructuring, bond ratings, and financial crises; basic tools used to address such issues, including fixed income mathematics, binomial option pricing, and swaps. Prerequisites: intermediate microeconomics and econometrics. Note: ECON 360a "Capital Markets" is cross-listed with SOM MGT 947a and has space for up to five undergraduates.

ECON 361b, Corporate Finance Christopher Clayton

Financial management from inside the corporation or operating entity. Topics include capital budgeting and valuation, optimal capital structure, initial public offerings, mergers, and corporate restructuring. Cases and problem sets provide applications. Prerequisites: intermediate microeconomics and econometrics. o Course cr

ECON 363a, The Global Financial Crisis Andrew Metrick and Timothy Geithner

Comprehensive survey of the causes, events, policy responses, and aftermath of the global financial crisis of 2007–09. Study of the dynamics of financial crises in a modern economy. Prerequisite: Successful completion of a course in introductory economics.

SO

ECON 365a or b / CPSC 365a or b, Algorithms Staff

Paradigms for algorithmic problem solving: greedy algorithms, divide and conquer, dynamic programming, and network flow. NP completeness and approximation algorithms for NP-complete problems. Algorithms for problems from economics, scheduling, network design and navigation, geometry, biology, and optimization. Provides algorithmic background essential to further study of computer science. Only one of CPSC 365, CPSC 366, or CPSC 368 may be taken for credit. Prerequisites: CPSC 202 and 223. QR

*** ECON 366b / AMTH 366b / CPSC 366b, Intensive Algorithms** Anna Gilbert
Mathematically sophisticated treatment of the design and analysis of algorithms and the theory of NP completeness. Algorithmic paradigms including greedy algorithms, divide and conquer, dynamic programming, network flow, approximation algorithms, and randomized algorithms. Problems drawn from the social sciences, Data Science, Computer Science, and engineering. For students with a flair for proofs and problem solving. Only one of CPSC 365, CPSC 366, or CPSC 368 may be taken for credit.
Prerequisites: MATH 244 and CPSC 223. QR

ECON 375b / GBLB 219b, Monetary Policy William English
Introduction to modern macroeconomic models and how to use the models to examine some of the key issues that have faced monetary policymakers during and after the global financial crisis of 2008–2009. Prerequisites: Intermediate level macroeconomics (ECON 122 or 126) and introductory econometrics. WR, SO o Course cr

*** ECON 407a / GBLB 310a, International Finance** Ana Fielor
A study of the implications of increasing integration of the world economy, through international trade, multinational production, and financial markets. Topics include foreign exchange markets, capital flows, trade and current account imbalances, coordination of monetary and fiscal policy in a global economy, financial crises and their links to sovereign debt crises and currency devaluations. Prerequisite: intermediate macroeconomics or equivalent. SO o Course cr

ECON 409b, Firms, Markets, and Competition Philip Haile
Analysis of imperfectly competitive markets, focusing on the interactions among firm behavior, market structure, and market outcomes. Topics include oligopoly, collusion, predation, firm entry, advertising, and price discrimination as well as public policy implications of market behavior. After intermediate microeconomics or equivalent. QR, SO

*** ECON 411b, Economics of Uncertainty and Information** Soenje Reiche
Individual and collective choice in the presence of uncertainty and asymmetric information. Implications of such decision making for economic phenomena. Basic analytical tools for studying decisions under uncertainty. Asset markets, adverse selection, screening, signaling, moral hazard, incomplete contracts, bilateral trade with asymmetric information, and mechanism design. Prerequisites: intermediate microeconomics and econometrics. SO o Course cr

*** ECON 412a, International Environmental Economics** Samuel Kortum
Introduction to international and environmental economics and to research that combines the two fields. Methods for designing and analyzing environmental policy when economic activity and pollution cross political borders. Effects of market openness on the environment and on environmental regulation; international economics and climate change. Prerequisites: intermediate microeconomics and econometrics. SO

ECON 424a / GBLB 308a, Central Banking William English
Introduction to the different roles and responsibilities of modern central banks, including the operation of payments systems, monetary policy, supervision and regulation, and financial stability. Discussion of different ways to structure central banks to best manage their responsibilities. Prerequisites: Intermediate

Microeconomics, Intermediate Macroeconomics, and Introductory Econometrics. SO
o Course cr

ECON 425a / CPSC 455a, Economics and Computation Staff

A mathematically rigorous investigation of the interplay of economic theory and computer science, with an emphasis on the relationship of incentive-compatibility and algorithmic efficiency. Our main focus is on algorithmic tools in mechanism design, algorithms and complexity theory for learning and computing Nash and market equilibria, and the price of anarchy. Case studies in Web search auctions, wireless spectrum auctions, matching markets, and network routing, and social networks. Prerequisite: CPSC 365 or permission of the instructor. Familiarity with basic microeconomic theory is helpful but not required. QR

ECON 431a / AMTH 431a / S&DS 431a, Optimization and Computation Yang Zhuoran

This course is designed for students in Statistics & Data Science who need to know about optimization and the essentials of numerical algorithm design and analysis. It is an introduction to more advanced courses in optimization. The overarching goal of the course is to teach students how to design algorithms for Machine Learning and Data Analysis (in their own research). This course is not open to students who have taken S&DS 430. Prerequisites: Knowledge of linear algebra, multivariate calculus, and probability. Linear Algebra, by MATH 222, 223 or 230 or 231; Graph Theory, by MATH 244 or CPSC 365 or 366; and comfort with proof-based exposition and problem sets, such as is gained from MATH 230 and 231, or CPSC 366.

* **ECON 434a, Labor Economics: Inequality and Social Mobility** Orazio Attanasio

The objective of this advanced course is to study various aspects of inequality and social mobility and to understand their trends over time and their drivers. Although we briefly study some international comparisons, the focus of the course is inequality in the US and, to a less extent, the UK. We consider inequalities among different countries only tangentially. Prerequisites: ECON 121 and Econometrics. SO

ECON 438a, Applied Econometrics: Politics, Sports, Microeconomics Ray Fair

This course has an applied econometrics focus. Topics include voting behavior, betting markets, and various issues in sports. The aim of the course is to help students prepare original empirical research using econometric tools and to read empirical papers in economics and other social sciences. Students write three empirical papers. The first can be an extension of an existing article, where some of the results are duplicated and then extended. The second is similar to the first with no example provided. The third is an original paper within the range of topics covered in the course, where data are collected and analyzed using relevant econometric techniques. Prerequisites: Two econometrics or statistics courses, one of which has to be ECON 117. Ideally, ECON 123 should also have been taken, but it is not an absolute requirement. ECON 135 and ECON 136 are substitutes for ECON 117 and ECON 123. Special permission from the instructor is needed if ECON 117 or ECON 136 has not been taken. Also required is introductory microeconomics. SO

ECON 439b, Applied Econometrics: Macroeconomic and Finance Forecasting Ray Fair

This course has an applied econometrics focus. The focus is on forecasting macroeconomic and financial variables. Macroeconomic forecasting concerns

forecasting variables like GDP, components of GDP like consumption, investment, and imports, inflation, the unemployment rate, interest rates, the government deficit, and exchange rates. There are various forecasting methods, some purely statistical time series techniques and some using economic theory. We consider both. Financial forecasting is more problematic, since changes in asset prices may be roughly unpredictable. We also examine topics like momentum forecasting to see if some asset prices are predictable. Prerequisites: Two courses in econometrics or statistics, or one course with special permission from the instructor. SO

* **ECON 441b, Economics of Information, Learning, and Communication** Mira Frick

A theoretical introduction to economic models of social learning and strategic information transmission, using tools from game theory and probability theory. The rationality of individual behavior as affected by pathologies such as herding, informational cascades, or strategic delays; the effectiveness of communication in settings in which an informed agent communicates information to a less informed agent. Prerequisites: intermediate microeconomics, a course in probability theory, and completion of the mathematics requirement for the Economics major. SO

* **ECON 444a, Market Inefficiencies and the Limits of Arbitrage** Michael J Pascutti

The role of hedge funds in the United States financial markets and hedge fund behavior; understanding what hedge funds do, why they exist, and how they are different from other investment vehicles. Study of investment strategies that provide opportunity and risk for investors and study of academic papers analyzing (risky) arbitrage strategies. Prerequisite: intermediate microeconomics and econometrics. SO
o Course cr

* **ECON 445b, The U.S. Banking System** Michael J Pascutti

The special functions of banks in the U.S. economy. The benefits but fragile nature of the banking system. Prerequisites: intermediate macroeconomics, microeconomics, and econometrics. SO

* **ECON 450b, Investment Analysis** Alex Hetherington and Chivetta Amelia

This seminar seeks to introduce the world of investment management to students, across a range of investment strategies from public stocks to private equity and real estate. The instructors, both senior members of the Yale Investment Office, the department that manages the University's \$41 billion endowment, guide class discussion in response to assigned reading and guest speaker visits. The distinguished guest speakers, including world-renowned hedge fund managers, venture capital luminaries and Yale's chief investment manager Matthew Mendelsohn '07 are at the heart of the course. These speakers join the seminar for a discussion of how their firms approach the investment landscape and how they seek to achieve market-beating returns. Students are asked to engage with and analyze the speaker's investment strategy and to think about the strategy from the perspective of an institutional investor like Yale. Registration requires instructor permission. SO

* **ECON 451b, Economics of Blockchains** Philipp Strack

In recent years, cryptocurrencies and blockchains have seen broad experimentation and adoption across many areas in the modern economy. However, the foundations of blockchains can be traced back to many classical results in the study of incentives and distributed systems, such as in economics, cryptography, and computer science. This seminar aims to introduce students to the theoretical underpinning of blockchain

technology and help develop skills in economic analysis. We cover the related literature and more recent developments and applications such as Bitcoin, decentralized exchanges, and smart contracts. We explore this novel field through the lens of mechanism design, i.e., aligning the incentives of strategic agents to induce desirable outcomes in an economic system. Prerequisites: ECON 121, ECON 159, or ECON 351. Exposure to computer science is not required, but highly recommended.

* **ECON 455a, Economic Models of New Technology** Evangelia Chalioti
 Analysis of firms' incentives to innovate, focusing on the effects of market power on the intensity of innovative activity. Topics include strategic investment in innovation, patent races, the diffusion of knowledge, intellectual property (IP) protection systems, IP licensing, research joint ventures, litigation, venture capital, and conflicts between IP rights and antitrust regulation. Prerequisite: Intermediate Microeconomics or equivalent: Econ 121 or Econ 125 SO

* **ECON 456a, Private Equity Investing** Michael Schmertzler
 A case-oriented study of principal issues and investment types found in substantial private equity portfolios. Discussion of enterprise valuation, value creation, business economics, negotiation, and legal structure, based on primary source materials and original cases. Prerequisite: ECON 251 or ECON 252 or ECON 255. SO

* **ECON 463b / BENG 403b, The Economics and Science of Medicine** Gregory Raskin and Yashodhara Dash
 This multidisciplinary class is an exploration of the background of today's bestselling medicines, their huge commercial impact, and the companies that created them. It focuses on the most compelling aspects of drug development and company formation in the context of topical issues like cancer treatment, gene editing, stem cell therapy, the opioid epidemic, and drug pricing controversies. Prerequisite: Introductory or intermediate microeconomics, introductory or intermediate Biology, Molecular Biology, Chemistry or Biomedical Engineering. SO

* **ECON 465b / EP&E 224b / GLBL 330b, Debating Globalization** Ernesto Zedillo
 Facets of contemporary economic globalization, including trade, investment, and migration. Challenges and threats of globalization: inclusion and inequality, emerging global players, global governance, climate change, and nuclear weapons proliferation. Prerequisite: background in international economics and data analysis. Preference to seniors majoring in Economics or EP&E. SO RP

* **ECON 467a / GLBL 307a, Economic Evolution of the Latin American and Caribbean Countries** Ernesto Zedillo
 Economic evolution and prospects of the Latin American and Caribbean (LAC) countries. Topics include the period from independence to the 1930s; import substitution and industrialization to the early 1980s; the debt crisis and the "lost decade"; reform and disappointment in the late 1980s and the 1990s; exploration of selected episodes in particular countries; and speculations about the future. Prerequisites: intermediate microeconomics and macroeconomics. SO

* **ECON 468b, Institutions and Incentives in Economic Development** Mark Rosenzweig
 Assessment of alternative policies and programs designed to promote economic development; examination of fundamental problems of underdeveloped areas and consideration of how and whether such programs resolve them. The roles of indigenous

institutions in low-income countries in alleviating problems of underdevelopment. Prerequisites: intermediate microeconomics and econometrics. SO

* **ECON 471b / EP&E 297b, Topics in Cooperative Game Theory** Pradeep Dubey
The theory and applications of cooperative games. Topics include matching, bargaining, cost allocation, market games, voting games, and games on networks. Prerequisite: intermediate microeconomics.

* **ECON 472a, Economics of Artificial Intelligence and Innovation** Evangelia Chalioti
This course studies the economics of innovation and the effects of artificial intelligence on different industries. Topics include economics of the intellectual property (IP) protection system; strategic choices in innovation and competition; patent races; measurement and big data; the sharing and digitalized economy; collective intelligence and decisions; online auctions; venture capital; legal and social infrastructure. Prerequisites: Intermediate Microeconomics or equivalent: Econ 121 or Econ 125 SO

* **ECON 475a / EP&E 286a, Discrimination in Law, Theory, and Practice** Gerald Jaynes
How law and economic theory define and conceptualize economic discrimination; whether economic models adequately describe behaviors of discriminators as documented in court cases and government hearings; the extent to which economic theory and econometric techniques aid our understanding of actual marketplace discrimination. Prerequisites: introductory microeconomics and at least one additional course in Economics, African American Studies, Ethnicity, Race, and Migration, or Women's, Gender, and Sexuality Studies.

* **ECON 478b, The Economics of Internet Markets** Charles Hodgson
Study of online markets with a focus on ongoing policy debates. Students learn about the workings of online markets by studying economic models of platform markets, consumer search, and advertising auctions. Students apply these frameworks to discussions about the regulation of the internet, including net neutrality, privacy, online media bias, and the monopoly power of "big tech." Readings draw from theoretical and empirical academic studies as well as the popular press. Prerequisites: Intermediate microeconomics and econometrics. SO

* **ECON 486b, Dynamic Games** Anna Sanktjohanser
This course explores topics on dynamic games: we consider situations where agents interact repeatedly. We cover applications related to a range of fields from industrial organization (price wars and oligopoly with imperfect monitoring) to macroeconomic policy (time consistency). Students should have a solid background in multivariate calculus, be comfortable with rigorous proofs and mathematical arguments, and be willing to learn further mathematical tools as needed. Prerequisites: either ECON 121 or ECON 125, as well as completion of the mathematics requirement of the economics major. SO

* **ECON 491a and ECON 492b, The Senior Essay** Staff
Senior essays are an opportunity for students to engage in independent, original economic research. Essays are not reviews of the literature, rather each should be an examination of a hypothesis using the tools of economics. In particular, the essay must contain original research and/or analysis. They can be theoretical, empirical or computational. The senior essays that receive A's and are awarded prizes are typically those that use economics tools (and, where appropriate, data) to offer fresh insights on

questions. Students enrolling in this one-term course need to find an advisor. There are no page requirements or formatting requirements. Generally, essays run about 30 pages. Advice regarding bibliographies, graphs, etc. should be given by your advisor. For further information, including relevant dates and deadlines, please see economics.yale.edu/undergraduate/senior-essay.

* **ECON 498a and ECON 499b, Directed Reading** Giovanni Maggi

Junior and senior economics majors desiring a directed reading course in special topics in economics not covered in other graduate or undergraduate courses may elect this course, not more than once, with written permission of the director of undergraduate studies and of the instructor. The instructor meets with the student regularly, typically for an hour a week, and the student writes a paper or a series of short essays. Junior and senior majors may take this course for a letter grade, but it does not meet the requirement for a department seminar. The application form may be found here: <https://economics.yale.edu/undergraduate/forms-documents>

Education Studies (EDST)

* **EDST 065a / HUMS 065a, Education and the Life Worth Living** Matthew Croasmun

Consideration of education and what it has to do with real life – not just any life, but a life worth living. Engagement with three visions of different traditions of imagining the good life and of imagining education: Confucianism, Christianity, and Modernism. Students will be asked to challenge the fundamental question of the good life and to put that question at the heart of their college education. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **EDST 107b / MB&B 107b / PHYS 107b, Being Human in STEM** Rona Ramos

A collaboratively-designed, project-oriented course that seeks to examine, understand, and disseminate how diversity of gender, race, religion, sexuality, economic circumstances, etc. shape the STEM experience at Yale and nationally, and that seeks to formulate and implement solutions to issues that are identified. Study of relevant peer-reviewed literature and popular-press articles. Implementation of a questionnaire and interviews of STEM participants at Yale. Creation of role-play scenarios for provoking discussions and raising awareness. Design and implementation of group interventions. SO

EDST 110a / AMST 115a / SOCY 112a, Foundations in Education Studies Staff

Introduction to key issues and debates in the U.S. public education system. Focus on the nexus of education practice, policy, and research. Social, scientific, economic, and political forces that shape approaches to schooling and education reform. Theoretical and practical perspectives from practitioners, policymakers, and scholars. SO
o Course cr

* **EDST 115a, Children and Books** Jill Campbell

as cross listing with ENGL 115, Children and Books as cross listing with ENGL 115, Children and Books WR

* **EDST 125a / CHLD 125a / PSYC 125a, Child Development** Ann Close and Carla Horwitz

This course is **first in a sequence** including Theory and Practice of Early Childhood Education (CHLD127/PSYCH 127/EDST 127) and Language Literacy and Play (CHLD

128/PSYCH 128/EDST 128). This course provides students a theoretical base in child development and behavior and tools to sensitively and carefully observe infants and young children. The seminar will consider aspects of cognitive, social, and emotional development. An assumption of this course is that it is not possible to understand children – their behavior and development – without understanding their families and culture and the relationships between children and parents. The course will give an overview of the major theories in the field, focusing on the complex interaction between the developing self and the environment, exploring current research and theory as well as practice. Students will have the opportunity to see how programs for young children use psychodynamic and interactional theories to inform the development of their philosophy and curriculum. Weekly Observations: -Total Time Commitment 3 hours per week. Students will do two separate weekly observations over the course of the semester. They will observe in a group setting for 2 hours each each week at a Yale affiliated child care center. Students will also arrange to do a weekly 1 hour observation (either in person or virtually) of a child under the age of 6. Students must make their own arrangements for these individual observations. If it is not possible to arrange a child to observe, please do not apply to take this course. For a portion of class meetings, the class will divide into small supervisory discussion groups. Priority given to juniors, seniors, Ed Study students. WR, SO

EDST 140a / PSYC 140a, Developmental Psychology Frank Keil

An introduction to research and theory on the development of perception, action, emotion, personality, language, and cognition from a cognitive science perspective. Focus on birth to adolescence in humans and other species. Prerequisite: PSYC 110. SO

EDST 144a / ER&M 211a / EVST 144a / SOCY 144a, Race, Ethnicity, and Immigration
Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations. SO o Course cr

EDST 160a / PSYC 150a, Social Psychology Maria Gendron

Theories, methodology, and applications of social psychology. Core topics include the self, social cognition/social perception, attitudes and persuasion, group processes, conformity, human conflict and aggression, prejudice, prosocial behavior, and emotion. SO

* **EDST 162a / SOCY 162a, Methods in Quantitative Sociology** Daniel Karell

Introduction to methods in quantitative sociological research. Topics include: data description; graphical approaches; elementary probability theory; bivariate and multivariate linear regression; regression diagnostics. Students use Stata for hands-on data analysis. QR, SO o Course cr

EDST 177b / AFAM 198b / CGSC 277b / EP&E 494b / PHIL 177b, Propaganda, Ideology, and Democracy Jason Stanley

Historical, philosophical, psychological, and linguistic introduction to the issues and challenges that propaganda raises for liberal democracy. How propaganda can work to

undermine democracy; ways in which schools and the press are implicated; the use of propaganda by social movements to address democracy's deficiencies; the legitimacy of propaganda in cases of political crisis. HU o Course cr

EDST 180a / PSYC 180a, Clinical Psychology Jutta Joermann

The major forms of psychopathology that appear in childhood and adult life. Topics include the symptomatology of mental disorders; their etiology from psychological, biological, and sociocultural perspectives; and issues pertaining to diagnosis and treatment. SO

* **EDST 209a / AFAM 239a / AMST 461a / ER&M 292a / WGSS 202a, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

* **EDST 211b / ER&M 406b, Latinx Communities and Education in the United States** Diana Cordova-Cobo

This course is an interdisciplinary and comparative study of Latinx communities and their experiences with K-12 education in the United States. The Latinx population in the United States continues to grow, with the Census Bureau projecting that the Latinx population will comprise 27.5 percent of the nation's population by 2060.[1] In fact, in 2018, more than a quarter of the nation's newborns were Latinx.[2] Yet, even as the Latinx population continues to grow, the education field has a relatively broad understanding of Latinx communities in the United States—frequently treating them as a monolith when designing everything from curriculum to education reform policies. To understand why such an approach to education studies may yield limited insight on Latinx communities, the course draws on research about the broader histories and experiences of Latinx communities in the United States before returning to the topic of K-12 education. EDST 110 Foundations in Education Studies recommended. SO

* **EDST 223b / PLSC 223b, Learning Democracy: The Theory and Practice of Civic Education** Amir Fairdosi

This is a seminar on the theory and practice of civic education. We begin by investigating philosophies of civic education, asking such questions as: What is civic education and what is its purpose? What knowledge, skills, and values promote human flourishing and the cultivation of a democratic society? What role can and should schools play in this cultivation? In the next part of the course we focus on civic education in practice, exploring various approaches to teaching civics and the empirical evidence in support of each method's effectiveness. We also discuss variations in access to civic education opportunities across socioeconomic, demographic, and national contexts, and how societies might deal with these disparities. SO

* **EDST 225b, Child Care, Society, and Public Policy** Jessica Sager and Janna Wagner

Exploration of societal decisions about where children under the age of five spend their days. Topics include where young children belong; how to regulate, pay for, and support child care arrangements; consideration of gender, race, and family finances; and the profound impact of these decisions on the well-being of children, families, and

the economy. Assignments draw heavily on student insights and reflections. Preference in enrollment will go to students who have taken EDST 110, with Education Studies Scholars receiving priority. SO

*** EDST 228a / CHLD 228a / PSYC 305a, Contemporary Topics in Social and Emotional Learning** Christina Cipriano

While our nation's youth are increasingly more anxious and disconnected than ever before, social and emotional learning, or SEL, is being politicized by arguments without empirical evidence. The reality is that due in part to its interdisciplinary origins, and in part to its quick uptake, what SEL is, why it matters, and who it benefits, has garnered significant attention since its inception. Key questions and discourse over the past three decades include if SEL skills are: another name for personality, soft skills, 21st century skills, or emotional intelligence, are SEL skills stand-alone or do they need to be taught together and in sequence, for how long does the intervention need to last to be effective, how do you assess SEL, are SEL skills culturally responsive and universally applicable, and can SEL promote the conditions for education equity? In this seminar, students unpack these key questions and challenge and evolve the current discourse through seminal and contemporary readings, writing, and artifact analyses. Students are provided with the opportunity to engage critically with the largest data set amassed to date of the contemporary evidence for SEL. Prerequisite: CHLD 125, or PSYC 125, or EDST 125.

*** EDST 230b, American Education and the Law** William Garfinkel

Interactions between American elementary and secondary school education and the American legal system, with a focus on historical and contemporary case law. The relationship between schooling and the state; constitutional, statutory, and regulatory law governing the rights and responsibilities of educators, students, and parents; equal educational opportunity. Recommended preparation: EDST 110. Preference to Education Studies Scholars. SO

*** EDST 232a / PLSC 232a, US Federal Education Policy** Mira Debs

Though education policy is typically viewed as a state and local issue, the federal government has taken a significant role in shaping policy since the end of World War II. The centralization of education policy has corresponded with changing views in society for what constitutes an equitable educational opportunity. This class is divided into three topics: 1) the federal role in education broadly (K-12) and the accountability movement in K-12: from the No Child Left Behind Act to the Common Core State Standards (and cross-national comparisons to US schools), 2) federal role in higher education, and 3) the education industry (teachers unions and think tanks). EDST 110 recommended. SO

EDST 237a / LING 217a / PSYC 317a, Language and Mind Maria Pinango

The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use. SO RP o Course cr

* **EDST 238a / PLSC 238a, The Politics of Public Education** Jennifer Berkshire
 Examination of the deep political divides, past and present, over public education in the United States. Fundamental questions, including who gets to determine where and how children are educated, who should pay for public education, and the role of education as a counter for poverty, remain politically contested. The course explores these conflicts from a variety of political perspectives. Students learn journalistic methods, including narrative, opinion and digital storytelling, developing the necessary skills to participate in the national conversation around education policy and politics.
 WR, SO

* **EDST 241a, Disability Studies and Special Education: Science, Policy and Practice**
 Kimberley Tsujimoto and Joan Bosson-Heenan
 This course explores disabilities in the context of K-12 education, including historical and current models of disabilities as they relate to special education and disability discourse. Focuses include education policies and barriers to accessible and equitable education and a range of topics including diagnostic criteria, inclusive and segregated classrooms, access to resources and accommodations, and intersectionality between disabilities, mental health, and diversity (e.g., race, sex). The final section of the course examines the provision of evidence-based interventions and best supports for students with disabilities. EDST 110 recommended. SO

* **EDST 255b / AFAM 259b / AMST 309b, Education and Empire** Talya Zemach-Bersin
 This course offers an introduction to the transnational history of education in relation to the historical development of the U.S. empire both at home and abroad. By bringing together topics often approached separately – immigration, education, race, colonialism, and the history of U.S. empire – we interrogate the ways that education has been mobilized to deploy power: controlling knowledge, categorizing and policing differences, administering unequal paths to citizenship/belonging, forcing assimilation, promoting socio-economic divides, and asserting discipline and control. EDST 110 recommended. HU

* **EDST 261b, Colloquium: Readings in Education Studies** Talya Zemach-Bersin
 This colloquium, required for all newly admitted YES Scholars, supplements the curriculum by introducing scholars to a range of topics, methods and approaches to education studies, acquainting them with the expertise and contributions of faculty teaching in the YES program and their fellow students, and providing them with opportunities for leadership, reflection, and collaboration. While building a cohort community, students will read key texts in the field of education studies and participate in research methods trainings. Assignments include weekly readings, an ongoing class blog, leading class convenings, research methods training, and collaborative final projects. Prerequisites: EDST 110 and acceptance into the Education Studies MAP.

* **EDST 263a / AFAM 261a / AMST 263a, Place, Race, and Memory in Schools** Errol Saunders
 In the wake of the Black Lives Matter movement and widespread, multiracial protests calling for racial justice across the United States, there is a renewed interest in the roles that schools play in perpetuating racial disparities in American society and the opportunities that education writ large might provide for remedying them. As *places*, schools both shape and are profoundly shaped by the built environment and the everyday experiences of the people that interact with them. Teachers, administrators,

students, and parents are impacted by the racialized memories to explain the past, justify the present, and to move them to action for the future. These individual and collective memories of who and where they are, and the traumas, successes, failures, and accomplishments that they have with regard to school and education are essential to understanding how schools and school reforms work. Grounded in four different geographies, this course examines how the interrelationships of place, race, and memory are implicated in reforms of preK-12 schools in the United States. The course uses an interdisciplinary approach to study these phenomena, borrowing from commensurate frameworks in sociology, anthropology, political science, and memory studies with the goal of examining multiple angles and perspectives on a given issue. EDST 110 recommended. SO

EDST 271b / AFAM 146b / ECON 171b, Urban Inequalities and Educational Inequality Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K-12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. SO

* **EDST 274b, College in Prison** Zelda Roland

The history, present, and future of higher education in prison seen through the perspective of practitioners, students, alumni, faculty, theorists, and higher ed policymakers. Topics include: prison education and abolition; liberal arts in prison; the history of higher education in the U.S.; the 1994 Pell grant ban for incarcerated students and the coming restoration of Pell access; citizenship and education; town-gown relationships, reparations, and higher education; the idea of criminality and the idea of studenthood; and the history of the Yale student body. EDST 110 recommended.

* **EDST 281a / HIST 404a / HUMS 303a / PLSC 281a, What is the University?**

Mordechai Levy-Eichel

The University is one of the most influential—and underexamined—kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices,

culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO

* **EDST 282b / PLSC 417b, Comparative International Education** Mira Debs
Around the world, education is one of the central institutions of society, developing the next generation of citizens, workers and individuals. How do countries balance these competing priorities? In which ways do countries converge on policies, or develop novel approaches to education? Through the course, students learn the a) impact of colonialism on contemporary education systems, b) the competing tensions of the demands of citizen and worker and c) how a variety of educational policies are impacted around the world and their impact on diverse populations of students. EDST 110 Foundations in Education Studies recommended. WR, SO

* **EDST 283a / AFST 285a, Children's Literature in Africa** Staff
This course introduces students to oral and written literature by/for and/or about children in Africa: from its oral origins in riddles, lullabies, playground verse, and folk narratives, to written texts in the form of drama, poetry, and prose. The course examines representative texts of the genre to address its historical background/development and explore its distinctive (literary) qualities. Major themes and social issues that are dealt with in African children's literature (including cultural notions of childhood, gender, and power) as well as critical approaches to the genre are considered. HU

* **EDST 285b, Educational Design: The Form and Function of Schooling and Learning** Richard Lemons and Leslie Torres-Rodriguez
This course explores the physical, chronological, structural, and curricular design of schools and classrooms that impact the educational community and the development of students. Using organizational theory and design thinking, students learn how to help schools better align to the learning needs of students. This course is especially ideal for students interested in founding their own schools or educational organizations. Prerequisite: EDST 110 is recommended. SO

* **EDST 290a, Leadership, Change, and Improvement in Education** Richard Lemons
Analysis of the most significant challenges faced by the United States educational system, drawing upon research from a range of academic disciplines to understand how schools and districts operate and why certain educational challenges persist, sometimes over multiple generations of students. Students will study successful educational improvement efforts to better understand the political and organizational strategies necessary to improve student experiences and outcomes at scale, as well as the leadership practices necessary to successfully implement and sustain such strategies. Preference given to Education Studies Scholars or others who have taken EDST 110. SO

* **EDST 340a / AFAM 455a / ER&M 438a, Anti-Racist Curriculum and Pedagogy**
Daniel HoSang
This seminar explores the pedagogical and conceptual tools, resources and frameworks used to teach about race and racism at the primary and secondary levels, across diverse disciplines and subject areas. Moving beyond the more limited paradigms of racial colorblindness and diversity, the seminar introduces curricular strategies for

centering race and racism in ways that are accessible to students from a broad range of backgrounds, and that work to advance the overall goals of the curriculum. SO

*** EDST 400a, Senior Capstone (Fall)** Talya Zemach-Bersin

The first course in the yearlong sequence, followed by EDST 410/EDST 490 preparing students for a thesis-equivalent capstone project and overview of education studies methodologies and practical research design. Prerequisites: EDST 110 and two Education Studies electives. Enrollment limited to senior Education Studies Scholars.

*** EDST 410b, Senior Capstone (Spring)** Talya Zemach-Bersin

The second course in the yearlong Education Studies Scholars capstone sequence where students conduct a rigorous project on a topic of their choice in education research, policy, and/or practice. Enrollment limited to senior Education Studies Scholars.

*** EDST 436a / PSYC 436a, Translating Developmental Science into Educational Practice** Julia Leonard

Recent insights from developmental psychology and neuroscience on synaptic plasticity, critical periods, metacognition, and enriched environments are ripe for application to improve children's lives. Yet sometimes the translation of research into practice is a bridge too far. In this course, we discuss cutting-edge research in developmental cognitive and neural sciences and examine how these findings can inform policy and educational practice. SO

*** EDST 490b, Senior Essay Independent Study** Talya Zemach-Bersin

Independent research under faculty direction, involving research, policy or practice resulting in a final capstone paper. This course is open to Education Studies Scholars who are completing their capstone, in lieu of taking EDST 400 or EDST 410. To register for this course, students must submit a written plan of study approved by a faculty mentor to the Director of Undergraduate Study no later than the end of registration period in the term in which the course is to be taken. The course meets biweekly (every two weeks), beginning in the first week of the term. Prerequisite: EDST 110.

Egyptian (EGYP)

EGYP 110a, Introduction to Classical Hieroglyphic Egyptian I Vincent Morel

Introduction to the language of ancient pharaonic Egypt (Middle Egyptian) and its hieroglyphic writing system, with short historical, literary, and religious texts. Grammatical analysis with exercises in reading, translation, and composition. L1

EGYP 117a, Elementary Biblical Coptic I David Baldi

The native Egyptian language in the Roman and Byzantine periods. Thorough grounding in grammar and vocabulary of the Sahidic dialect as a basis for reading biblical, monastic, and Gnostic texts. Credit only on completion of EGYP 127. L1 RP

EGYP 120b, Introduction to Classical Hieroglyphic Egyptian II Mike Tritsch

Continuation of EGYP 110. Prerequisite: EGYP 110. L2 RP

EGYP 127b, Elementary Biblical Coptic II Camille Angelo

Continued study of the native Egyptian language in the Roman and Byzantine periods. Thorough grounding in grammar and vocabulary of the Sahidic dialect as a basis for reading biblical, monastic, and Gnostic texts. Prerequisite: EGYP 117. L2 RP

*** EGYP 131a, Intermediate Egyptian I: Literary Texts** John Darnell

This course engages in close reading of Middle Egyptian literary texts in hieroglyphic transcription, along with an introduction to the hieratic (cursive) Egyptian script of the original sources. Primary sources include the Middle Kingdom stories, principally those known by the modern titles “The Story of Sinuhe” and “The Tale of the Eloquent Peasant.” Assigned secondary literature includes reviews of grammatical topics in Middle Egyptian and analyses of the cultural, religious, and historical context of the literary texts. We also read portions of texts from other genres—historical, administrative, etc.—that serve to illuminate concepts and practices appearing in the literary compositions. Prerequisite: EGYP 120 or permission of instructor. L3

*** EGYP 141b, Intermediate Egyptian: Historical Texts** Vincent Morel

Close reading of Middle Egyptian historical texts in original hieroglyphic and hieratic script. Initial survey of ancient Egyptian historiography and grammatical forms peculiar to this genre of text. Prerequisite: EGYP 120. Counts as L4 if taken after EGYP 131. L3
RP

*** EGYP 229a, Ancient Egyptian Epistolography** John Darnell

This course engages in close reading of ancient Egyptian letters, along with the development of further proficiency in the hieratic (cursive) Egyptian script (students who have no previous experience with hieratic are given an introduction to the writing system). Primary sources include material of Old Kingdom, Middle Kingdom, New Kingdom, and Third Intermediate Period date. Assigned secondary literature includes analyses of the cultural, religious, and historical context of the letters. Prerequisite: At least one L3 or L4 course or permission of instructor. L5 RP

Electrical Engineering (EENG)

EENG 200a, Introduction to Electronics Staff

Introduction to the basic principles of analog and digital electronics. Analysis, design, and synthesis of electronic circuits and systems. Topics include current and voltage laws that govern electronic circuit behavior, node and loop methods for solving circuit problems, DC and AC circuit elements, frequency response, nonlinear circuits, semiconductor devices, and small-signal amplifiers. A lab session approximately every other week. After or concurrently with MATH 115 or equivalent. QR, WR, SC
o Course cr

EENG 201b, Introduction to Computer Engineering Priya Panda

Introduction to the theoretical principles underlying the design and programming of simple processors that can perform algorithmic computational tasks. Topics include data representation in digital form, combinational logic design and Boolean algebra, sequential logic design and finite state machines, and basic computer architecture principles. Hands-on laboratory involving the active design, construction, and programming of a simple processor. QR

EENG 202a, Communications, Computation, and Control Amin Karbasi

Introduction to systems that sense, process, control, and communicate. Topics include information theory and coding (compression, channel coding); network systems (network architecture, routing, wireless networks); signals and systems (linear systems, Fourier techniques, bandlimited sampling); estimation and learning (hypothesis testing, regression, classification); and end-to-end application examples

(security, communication systems). MATLAB programming assignments illustrate concepts. Students should have basic familiarity with counting (combinatorics), probability and statistics (independence between events, conditional probability, expectation of random variables, uniform distribution). Prerequisite: MATH 115. AP Stats preferred. QR

EENG 203b, Circuits and Systems Design Hong Tang

Introduction to design in a laboratory setting. A wide variety of practical systems are designed and implemented to exemplify the basic principles of systems theory. Systems include audio filters and equalizers, electrical and electromechanical feedback systems, radio transmitters and receivers, and circuits for sampling and reconstructing music. Prerequisites: EENG 200 QR, SC RP

* **EENG 235a and EENG 236b, Special Projects** Rajit Manohar and Fengnian Xia

Faculty-supervised individual or small-group projects with emphasis on laboratory experience, engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics during the term preceding enrollment. These courses may be taken at any time during the student's career. Enrollment requires permission of both the instructor and the director of undergraduate studies, and submission to the latter of a one- to two-page prospectus signed by the instructor. The prospectus is due in the departmental office one day prior to the date that the student's course schedule is due. ½ Course cr per term

EENG 310b, Signals and Systems Dionysis Kalogierias

Signal and system theory, having its roots at a great extent on classical and modern harmonic analysis, has played an instrumental role in the development of several transformative technologies during the 20th and 21st centuries. Two such examples are communication systems (analog, digital, wired, wireless), and compressive sensing and sparse approximations. This core course provides a comprehensive first exposition to signal and system theory, and mainly covers the following content: definitions/classifications/modeling of signals and systems in continuous and discrete-time; linear system theory (impulse response, frequency response, linear difference/differential equations); convolutions (continuous and discrete); Fourier series; Fourier transform (continuous and discrete-time); Laplace transform and Z-transform. Prior knowledge of advanced calculus of one variable and some elementary real analysis will be very useful (something like MATH 115), although it is not required strictly. QR

EENG 320a / APHY 320a, Introduction to Semiconductor Devices Mengxia Liu

An introduction to the physics of semiconductors and semiconductor devices. Topics include crystal structure; energy bands in solids; charge carriers with their statistics and dynamics; junctions, p-n diodes, and LEDs; bipolar and field-effect transistors; and device fabrication. Additional lab one afternoon per week. Prepares for EENG 325 and 401. Recommended preparation: EENG 200. PHYS 180 and 181 or permission of instructor QR, SC

EENG 325a, Electronic Circuits Fengnian Xia

Models for active devices; single-ended and differential amplifiers; current sources and active loads; operational amplifiers; feedback; design of analog circuits for particular functions and specifications, in actual applications wherever possible, using design-oriented methods. Includes a team-oriented design project for real-world applications,

such as a high-power stereo amplifier design. Electronics Workbench is used as a tool in computer-aided design. Additional lab one afternoon per week. Prerequisite: EENG 200. QR RP

EENG 348b / CPSC 338b, Digital Systems Rajit Manohar

Development of engineering skills through the design and analysis of digital logic components and circuits. Introduction to gate-level circuit design, beginning with single gates and building up to complex systems. Hands-on experience with circuit design using computer-aided design tools and microcontroller programming. Recommended preparation: EENG 201. QR

EENG 401b, Photonics and Optical Electronics Jung Han

A survey of the enabling components and devices that constitute modern optical communication systems. Focus on the physics and principles of each functional unit, its current technological status, design issues relevant to overall performance, and future directions. Formerly EENG 410. EENG 320 and APHY 322, or permission of instructor QR, SC

EENG 402b / APHY 418b, Advanced Electron Devices Mengxia Liu

The science and technology of semiconductor electron devices. Topics include compound semiconductor material properties and growth techniques; heterojunction, quantum well and superlattice devices; quantum transport; graphene and other 2D material systems. Formerly EENG 418. Prerequisite: EENG 320 or equivalent. QR, SC

EENG 420b / CPSC 420b, Computer Architecture Yongshan Ding

This course offers a treatment of computer architectures for high-performance and power/energy-efficient computer systems. Topics include the foundations of general-purpose computing, including instruction set architectures, pipelines, superscalar and out-of-order execution, speculation, support for precise exceptions, and simultaneous multi-threading. We also cover domain-specific hardware (e.g., graphics processing units), and ongoing industry efforts to elevate them to the status of first-class computing units. In tandem, we cover topics relevant to both general-purpose and domain-specific computing, including memory hierarchies, address translation and virtual memory, on-chip networks, machine learning techniques for resource management, and coherence techniques. If time permits, we will study the basics of emerging non-classical computing paradigms like neuromorphic computing. Overall, this course offers insights on how the computing industry is combating the waning of traditional technology scaling via acceleration and heterogeneity. Prerequisites: CPSC 323, 223, and 202. This is a programming-intensive course, so comfort with large programming projects is essential.

* **EENG 424b, Computer Hardware Security** Jakub Szefer

Computer hardware security is one of the most important and challenging areas in computer engineering. Securing computers is essential to safeguarding personal information, intellectual property, and the national infrastructure at large. While technology is constantly changing, the fundamental problems of securing computers remain the same. With each new technology, similar problems of information leakage and different types of covert- and side- channel attacks emerge. This course provides an in-depth examination of computers and their hardware-based security issues. The operation of the hardware, from transistors to processor microarchitectures, has intimate impact on the security of the whole system. Often, software or algorithms

executing on a computer have no control over, or detailed access to, the underlying hardware. Yet, the operation of the hardware and different types of side-effects, such as changing timing, changing power consumption, EM emanations, or different types of crosstalk effects lead to information leakage. To understand the hardware-based security issues, and how to prevent them, the course focuses on classical microprocessors, accelerators such as Field Programmable Gate Arrays, as well as emerging technologies such as Quantum Computers. For the different types of computers, the course teaches students about the various hardware security issues, and students are able to experiment and perform hands-on exercises to demonstrate different types of information leaks. Students also learn about latest research through reading and presenting research papers in-class. Prerequisite: EENG 348 or CPSC 323 or with instructor's approval. QR

EENG 428a, Cloud Computing with FPGAs Jakub Szefer

This course is an intermediate to advanced level course focusing on digital design and use of Field Programmable Gate Arrays (FPGAs). The course centers around the new cloud computing paradigm of using FPGAs that are hosted remotely by cloud providers and accessed remotely by users. The theoretical aspects of the course focus on digital system modeling and design using the Verilog Hardware Description Language (Verilog HDL). In the course, students learn about logic synthesis, behavioral modeling, module hierarchies, combinatorial and sequential primitives, and implementing and testing the designs in simulation and real FPGAs. Students learn about topics ranging from high-level ideas about cloud computing to low-level details of interfacing servers to FPGAs, PCIe protocol, AXI protocol, and other common communication protocols between hardware modules or between the FPGAs and the host computer, including Serial, SPI, and I2C. Students also learn about and use FPGA tools from Xilinx, but course also touches on tools available from Intel (formerly Altera) as well as open-source tools. The practical aspects of the course include semester-long projects leveraging commercial or in-lab remote FPGAs, based on the project selected by students. Prerequisites: EENG 201 and 348 or permission of the instructor. Students should be familiar with digital design basics and have some experience with Hardware Description Languages such as Verilog or VHDL. QR

EENG 431b, Foundations of Data Science Amin Karbasi

Recent advances in data science have enabled us to make tremendous progress in various fields including robotics, machine learning, computer vision, medicine, etc. This course provides an easy, yet rigorous, introduction to the mathematical and algorithmic foundations of data science. We cover key ideas that have led to such progress from statistics to optimization. The course is organized around three themes: What is learning? What algorithms we can use to learn? How can we optimize resources for efficient learning? Prerequisites: MATH 120, MATH 222, CPSC 365, and STAT 241. SC

* **EENG 432a / AMTH 342a, Linear Systems** A Stephen Morse

Introduction to finite-dimensional, continuous, and discrete-time linear dynamical systems. Exploration of the basic properties and mathematical structure of the linear systems used for modeling dynamical processes in robotics, signal and image processing, economics, statistics, environmental and biomedical engineering, and control theory. Prerequisite: MATH 222 or permission of instructor. QR

EENG 439a, Neural Networks and Learning Systems Priya Panda

Neural networks (NNs) have become all-pervasive giving us self-driving cars, Siri Voice assistants, Alexa, and much more. While deep NNs deliver state-of-the-art accuracy on many artificial intelligence tasks, it comes at the cost of high computational complexity. Accordingly, designing efficient hardware architectures for deep neural networks is an important step towards enabling the wide deployment of NNs, particularly in low-power computing platforms, such as, mobiles, embedded Internet of Things (IoT) and drones. This course aims to provide a thorough overview on deep learning techniques, while highlighting the key trends and advances toward efficient processing of deep learning in hardware systems, considering algorithm-hardware co-design techniques. Prerequisites: MATH 222 or CPSC 202, EENG 201, and knowledge of Python programming.

EENG 440a, Detection and Estimation Dionysis Kalogieras

Detection and estimation refers to the development and study of statistical theory and methods in settings involving stochastic signals and, more generally, stochastic processes or stochastic data, where the goal is (optimal) testing of possibly multiple hypotheses regarding the generative model of the data, (optimal) signal estimation from potentially noisy measurements/observations, and parameter estimation whenever parametric signal/data models are available. Although these problems often come up in the context of signal processing and communications, the concepts are fundamental to the basic statistical methodologies used broadly across science, medicine, and engineering. The course has been designed from a contemporary perspective, and includes new and cutting-edge topics such as risk-aware statistical estimation and intrinsic links with stochastic optimization and statistical learning. Suggested prerequisites: MATH 241 or S&DS 238, S&DS 241; MATH 222, MATH 225, EENG 202 (preferred) Prior knowledge of undergrad/first-year-grad level probability would be ideal. Knowledge of real analysis/measure theory would be even more ideal, but it is not required.

EENG 443a / MENG 443a, Fundamentals of Robot Modeling and Control Ian Abraham

This course introduces fundamental concepts of robotics, optimal control, and reinforcement learning. Lectures cover topics on state representation, manipulator equations, forward/inverse kinematics/dynamics, planning and control of fully actuated and underactuated robots, operational space control, control via mathematical optimization, and reinforcement learning. The topics focus on connecting mathematical formulations to algorithmic implementation through simulated robotic systems. Coding assignments provide students experience setting up and interfacing with several simulated robotic systems, algorithmic implementation of several state-of-the-art methods, and a codebase for future use. Special topic lectures focus on recent developments in the field of robotics and highlight core research areas. A final class project takes place instead of a final exam where students leverage the codebase they have built throughout the course in a robot problem of their choosing. Experience with differential equations, linear algebra, and basic understanding of dynamics is required. Basic coding experience in e.g., python, c++, c, are also required. Juniors and seniors preferred.

EENG 445a / BENG 445a, Biomedical Image Processing and Analysis James Duncan and Lawrence Staib

This course is an introduction to biomedical image processing and analysis, covering image processing basics and techniques for image enhancement, feature extraction, compression, segmentation, registration and motion analysis including traditional and machine learning techniques. Student learn the fundamentals behind image processing and analysis methods and algorithms with an emphasis on biomedical applications.

Prerequisite: BENG 352 or EENG 310 or permission of instructors. Recommended preparation: familiarity with probability theory.

* **EENG 455b, Network Algorithms and Stochastic Optimization** Leandros Tassioulas

This course focuses on resource allocation models as well as associated algorithms and design and optimization methodologies that capture the intricacies of complex networking systems in communications computing as well as transportation, manufacturing, and energy systems. Max-weight scheduling, back-pressure routing, wireless opportunistic scheduling, time-varying topology network control, and energy-efficient management are sample topics to be considered, in addition to Lyapunov stability and optimization, stochastic ordering, and notions of fairness in network resource consumption. QR

* **EENG 468a and EENG 469b, Advanced Special Projects** Rajit Manohar and Fengnian Xia

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics during the term preceding enrollment. This course may only be taken once and at any appropriate time during the student's career; it does not fulfill the senior requirement. Enrollment requires permission of both the instructor and the DUS, and submission to the latter of a one- to two-page prospectus approved by the instructor. The prospectus is due to the DUS one day prior to the date that the student's course schedule is due.

* **EENG 471a and EENG 472b, Senior Advanced Special Projects** Rajit Manohar and Fengnian Xia

Faculty-supervised individual or small-group projects with emphasis on research (laboratory or theory), engineering design, or tutorial study. Students are expected to consult the director of undergraduate studies and appropriate faculty members about ideas and suggestions for suitable topics during the term preceding enrollment. This course is only open to seniors and is one of the courses that fulfills the senior requirement. Enrollment requires permission of both the instructor and the DUS, and submission to the latter of a one- to two-page prospectus approved by the instructor. The prospectus is due to the DUS one day prior to the date that the student's course schedule is due.

EENG 475a / BENG 475a / CPSC 475a, Computational Vision and Biological Perception Steven Zucker

An overview of computational vision with a biological emphasis. Suitable as an introduction to biological perception for computer science and engineering students, as well as an introduction to computational vision for mathematics, psychology, and

physiology students. Prerequisite: CPSC 112 and MATH 120, or with permission of instructor. QR, SC RP

* **EENG 481b, Advanced ABET Projects** Roman Kuc

Study of the process of designing an electrical device that meets performance specifications, including project initiation and management, part specification, teamwork, design evolution according to real-world constraints, testing, ethics, and communication skills. Design project consists of electronic sensor, computer hardware, and signal analysis components developed by multidisciplinary teams. Prerequisites: EENG 310, 320, 325, and 348. RP

Energy Studies (ENRG)

* **ENRG 300a, Multidisciplinary Topics in World Energy** Michael Oristaglio

This course studies how the 21st century energy transition away from fossil fuels towards sustainable (sustainable, low-carbon) energy sources is proceeding in key countries and regions around the world such as U.S., Germany, China, India, and Sub-Saharan Africa. The approach is multidisciplinary, encompassing geographical, technological, economic, social and geopolitical incentives and barriers to progress. Enrollment in the Energy Studies MAP is required. SO

* **ENRG 320a / ENVE 320a / MENG 320a, Energy, Engines, and Climate** Alessandro Gomez

The course aims to cover the fundamentals of a field that is central to the future of the world. The field is rapidly evolving and, although an effort will be made to keep abreast of the latest developments, the course emphasis is on timeless fundamentals, especially from a physics perspective. Topics under consideration include: key concepts of climate change as a result of global warming, which is the primary motivator of a shift in energy supply and technologies to wean humanity off fossil fuels; carbon-free energy sources, with primary focus on solar, wind and associated needs for energy storage and grid upgrade; and, traditional power plants and engines using fossil fuels, that are currently involved in 85% of energy conversion worldwide and will remain dominant for at least a few decades. Elements of thermodynamics are covered throughout the course as needed, including the definition of various forms of energy, work and heat as energy transfer, the principle of conservation of energy, first law and second law, and rudiments of heat engines. We conclude with some considerations on energy policy and with the "big picture" on how to tackle future energy needs. The course is designed for juniors and seniors in science and engineering. Prerequisite: MENG 211 or permission from the instructor. SC

Engineering & Applied Science (ENAS)

* **ENAS 050a or b / APHY 050a or b / PHYS 050a or b, Science of Modern Technology and Public Policy** Daniel Prober

Examination of the science behind selected advances in modern technology and implications for public policy, with focus on the scientific and contextual basis of each advance. Topics are developed by the participants with the instructor and with guest lecturers, and may include nanotechnology, quantum computation and cryptography, renewable energy technologies, optical systems for communication and medical diagnostics, transistors, satellite imaging and global positioning systems, large-scale

immunization, and DNA made to order. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

* **ENAS 100b / APHY 100b / EPS 105b / EVST 100b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC

ENAS 110b / APHY 110b, The Technological World Owen Miller

An exploration of modern technologies that play a role in everyday life, including the underlying science, current applications, and future prospects. Examples include solar cells, light-emitting diodes (LEDs), computer displays, the global positioning system, fiber-optic communication systems, and the application of technological advances to medicine. For students not committed to a major in science or engineering; no college-level science or mathematics required. Prerequisite: high school physics or chemistry. QR, SC

* **ENAS 118a, Introduction to Engineering, Innovation, and Design** Vincent Wilczynski

An introduction to engineering, innovation, and design process. Principles of material selection, stoichiometry, modeling, data acquisition, sensors, rapid prototyping, and elementary microcontroller programming. Types of engineering and the roles engineers play in a wide range of organizations. Lectures are interspersed with practical exercises. Students work in small teams on an engineering/innovation project at the end of the term. Priority to first-year students. RP

* **ENAS 120a / CENG 120a / ENVE 120a, Introduction to Environmental Engineering** John Fortner

Introduction to engineering principles related to the environment, with emphasis on causes of problems and technologies for abatement. Topics include air and water pollution, global climate change, hazardous chemical and emerging environmental technologies. Prerequisites: high school calculus and chemistry or CHEM 161, 165 or CHEM 163, 167 (may be taken concurrently) or permission of instructor. QR, SC

ENAS 130a or b, Introduction to Computing for Engineers and Scientists Staff

An introduction to the use of the C and C++ programming languages and the software packages Mathematica and MATLAB to solve a variety of problems encountered in mathematics, the natural sciences, and engineering. General problem-solving techniques, object-oriented programming, elementary numerical methods, data analysis, and graphical display of computational results. Prerequisite: MATH 115 or equivalent. Recommended preparation: previous programming experience. QR

ENAS 151a or b / APHY 151a or b / PHYS 151a or b, Multivariable Calculus for Engineers Staff

An introduction to multivariable calculus focusing on applications to engineering problems. Topics include vector-valued functions, vector analysis, partial differentiation, multiple integrals, vector calculus, and the theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or equivalent. QR

ENAS 194a or b / APHY 194a or b, Ordinary and Partial Differential Equations with Applications Staff

Basic theory of ordinary and partial differential equations useful in applications. First- and second-order equations, separation of variables, power series solutions, Fourier series, Laplace transforms. Prerequisites: ENAS 151 or MATH 120 or equivalent, and knowledge of matrix-based operations. QR

ENAS 345b / CENG 345b, Principles and Applications of Interfacial Phenomena Kyle Vanderlick

This course covers the nature and consequences of both flexible and rigid interfaces, such as those associated with liquids and solids respectively. We examine the properties of interfaces as they exist alone, as a collective (e.g., colloids), and also as they interact demonstrably with one another. Examples of the latter include thin films, confined fluids and biological membranes. An integral part of this course is the introduction and application of engineering analysis (e.g., finite element analysis) to calculate and predict behaviors central to technological applications. SC

ENAS 360b / ENVE 360b, Green Engineering and Sustainable Design Julie Zimmerman

Study of green engineering, focusing on key approaches to advancing sustainability through engineering design. Topics include current design, manufacturing, and disposal processes; toxicity and benign alternatives; policy implications; pollution prevention and source reduction; separations and disassembly; material and energy efficiencies and flows; systems analysis; biomimicry; and life cycle design, management, and analysis. Prerequisites: CHEM 161, 165 or 163, 167 (or CHEM 112, 113, or 114, 115), or permission of instructor.

*** ENAS 403a, Funding It: Innovation, Entrepreneurship, and Venture Capital** Jorge Torres

A survey of the origins, practice, and business models of venture capital with application to engineering science. Consideration of three major areas: the history and purpose of venture capital; the practical details of venture investing; and advanced topics on business models, technology ecosystems, and ethics. Particular exposure to principles of entrepreneurship, including intellectual property strategy, market validation, customer discovery, positioning, and capital formation. Separate application required at: <https://bit.ly/ENAS403>

*** ENAS 415a / BENG 415a, Practical Applications of Bioimaging and Biosensing** Daniel Coman, Ansel Hillmer, and Evelyn Lake

Detecting, measuring, and quantifying the structural and functional properties of tissue is of critical importance in both biomedical research and medicine. This course focuses on the practicalities of generating quantitative results from raw bioimaging and biosensing data to complement other courses focus on the theoretical foundations which enable the collection of these data. Participants in the course work with real, cutting-edge data collected here at Yale. They become familiar with an array of current software tools, denoising and processing techniques, and quantitative analysis methods that are used in the pursuit of extracting meaningful information from imaging data. The subject matter of this course ranges from bioenergetics, metabolic pathways, molecular processes, brain receptor kinetics, protein expression and interactions to wide spread functional networks, long-range connectivity, and organ-level brain organization. The course provides a unique hands-on experience with processing

and analyzing *in vitro* and *in vivo* bioimaging and biosensing data that is relevant to current research topics. The specific imaging modes which are covered include *in vivo* magnetic resonance spectroscopy (MRS) and spectroscopic imaging (MRSI), functional, structural, and molecular imaging (MRI), wide-field fluorescent optical imaging, and positron emission tomography (PET). The course provides the necessary background in biochemistry, bioenergetics, and biophysics for students to motivate the image manipulations which they learn to perform. Prerequisites: Math through first order differential equations, PHYS 180/181, CHEM 161, BIOL 101/102, BENG 249 or other experience with scientific software like MATLAB®, BENG 350 and BENG 410 (both of which can be taken at the same time as this course) SC o Course cr

ENAS 441a / MENG 441a, Applied Numerical Methods for Differential Equations

Beth Anne Bennett

The derivation, analysis, and implementation of numerical methods for the solution of ordinary and partial differential equations, both linear and nonlinear. Additional topics such as computational cost, error estimation, and stability analysis are studied in several contexts throughout the course. Prerequisites: MATH 115, and 222 or 225, or equivalents; ENAS 130 or some knowledge of Matlab, C++, or Fortran programming; ENAS 194 or equivalent. ENAS 440 is not a prerequisite. QR

ENAS 475a / MENG 475a, Fluid Mechanics of Natural Phenomena Amir Pahlavan

This course draws inspiration from nature and focuses on utilizing the fundamental concepts of fluid mechanics and soft matter physics to explain these phenomena. We study a broad range of problems related to i) nutrient transport in plants, slime molds, and fungi and the adaptation of their networks in dynamic environments, ii) collective behavior and chemotaxis of swimming microorganisms, and iii) pattern formation in nature, e.g. icicles, mud cracks, salt polygons, dendritic crystals, and Turing patterns. We also discuss how our understanding of these problems could be used to develop sustainable solutions for the society, e.g. designing synthetic trees to convert CO₂ to oxygen, developing micro/nano robots for biomedical applications, and utilizing pattern formation and self-assembly to make new materials. Prerequisite: MENG 361.

English Language and Literature (ENGL)

* ENGL 011a / PLSC 025a, **Lincoln in Thought and Action** David Bromwich

An intensive examination of the career, political thought, and speeches of Abraham Lincoln in their historical context. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* ENGL 012a, **Shakespeare and Popular Culture** Nicole Sheriko

How and why did Shakespeare become “popular”? Why is he still part of popular culture today? In this transhistorical and interdisciplinary course, we chart the history of Shakespeare’s celebrity, from the first publication of his works to their first adaptations in the Restoration, from Garrick’s Shakespeare Jubilee to the preservation of the Shakespeare Birthplace that he put on the map, from the recreation of the Globe Theatre to the role of Shakespeare in our contemporary cultural imagination. We read *Romeo and Juliet*, *Hamlet*, and *Macbeth* alongside a wide range of adaptations and cultural objects they inspire, using television, film, graphic novels, short stories, advertising, toys and souvenirs, and even tumblr poetry to consider how Shakespeare’s legacy evolves to meet the needs of changing eras. By the end of the course, we curate

a collection of contemporary Shakespeariana to consider what Shakespeare means to our popular imagination. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **ENGL 031a / RLST 022a, Religion and Science Fiction** Maria Doerfler
Survey of contemporary science fiction with attention to its use and presentation of religious thought and practice. Focus on the ways in which different religious frameworks inform the literary imagination of this genre, and how science fiction in turn creates religious systems in both literature and society. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **ENGL 033a / LING 033a, Words, Words, Words: The Structure and History of English Words** Peter Grund
Meggings. Perpendicular. Up. Ain't. Eerily. Bae. The. These are all words in the English language, but, like all words, they have different meanings, functions, and social purposes; indeed, the meaning and function may be different for the same word depending on the context in which we use it (whether spoken or written). In this course, we explore the wonderful world of words. We look at how we create new words (and why), how we change the meaning of words, and how words have been lost (and revived) over time. As we do so, we look at debates over words and their meanings now (such as the feeling by some that *ain't* is not a word at all) and historically (such as the distaste for *subpeditals* for 'shoes' in the sixteenth century), and how words can be manipulated to insult, hurt, and discriminate against others. We look at a wide range of texts by well-known authors (such as Shakespeare) as well as anonymous online bloggers, and we make use of online tools like the Google Ngram viewer and the Corpus of Historical American English to see how words change over time. At the end of the course, I hope you see how we make sophisticated use of words and how studying them opens up new ways for you to understand why other people use words the way they do and how you can use words for various purposes in your own speech and writing. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **ENGL 067b / AMST 070b / HUMS 067b, The Road in Literature and Film** Steven Shoemaker
Stories about journeys are at the heart of some of the most powerful works of art and literature that humankind has produced, from the time of Homer's *Odyssey* onward, and the trope of the journey has played an especially prominent role in American literature and film. In this course, we look at modern and contemporary examples of books and films that explore "the road" both as a path to freedom and discovery and as a site of hardship and precarity. Along the way, we examine quests for personal enlightenment, flights from economic and political oppression, and attempts to locate some "elsewhere" that's more exciting than home. Works of literature are likely to include Walt Whitman's "Song of the Open Road," Jack Kerouac's *On the Road*, John Steinbeck's *The Grapes of Wrath*, Muriel Rukeyser's *U.S. 1*, Jesmyn Ward's *Sing, Unburied, Sing*, and Colson Whitehead's *The Underground Railroad*. Films are likely to include Sullivan's *Travels*, *It Happened One Night*, *Easy Rider*, *Thelma and Louise*, and *Into the Wild*. WR, HU

*** ENGL 114a or b, Writing Seminars** Staff

Instruction in writing well-reasoned analyses and academic arguments, with emphasis on the importance of reading, research, and revision. Using examples of nonfiction prose from a variety of academic disciplines, individual sections focus on topics such as the city, childhood, globalization, inequality, food culture, sports, and war. WR

*** ENGL 115a or b, Literature Seminars** Staff

Exploration of major themes in selected works of literature. Individual sections focus on topics such as war, justice, childhood, sex and gender, the supernatural, and the natural world. Emphasis on the development of writing skills and the analysis of fiction, poetry, drama, and nonfiction prose. WR, HU

*** ENGL 120a or b, Reading and Writing the Modern Essay** Staff

Close reading of great nonfiction prepares students to develop mastery of the craft of powerful writing in the humanities and in all fields of human endeavor, within the university and beyond. Study of some of the finest essayists in the English language, including James Baldwin, Joan Didion, Leslie Jamison, Jhumpa Lahiri, George Orwell, David Foster Wallace, and Virginia Woolf. Assignments challenge students to craft persuasive arguments from personal experience, to portray people and places, and to interpret fundamental aspects of modern culture. WR

*** ENGL 123a or b, Introduction to Creative Writing** Staff

Introduction to the writing of fiction, poetry, and drama. Development of the basic skills used to create imaginative literature. Fundamentals of craft and composition; the distinct but related techniques used in the three genres. Story, scene, and character in fiction; sound, line, image, and voice in poetry; monologue, dialogue, and action in drama. HU

*** ENGL 125a or b, Readings in English Poetry I** Staff

Introduction to the English literary tradition through close reading of select poems from the seventh through the seventeenth centuries. Emphasis on developing skills of literary interpretation and critical writing; diverse linguistic and social histories; and the many varieties of identity and authority in early literary cultures. Readings may include *Beowulf*, *The Canterbury Tales*, Middle English lyrics, *The Faerie Queene*, *Paradise Lost*, and poems by Isabella Whitney, Philip Sidney, William Shakespeare, Amelia Lanyer, John Donne, and George Herbert, among others. Preregistration required; see under English Department. WR, HU

*** ENGL 126a or b, Readings in English Poetry II** Staff

Introduction to the English literary tradition through close reading of select poems from the eighteenth century through the present. Emphasis on developing skills of literary interpretation and critical writing; diverse genres and social histories; and modernity's multiple canons and traditions. Authors may include Alexander Pope, William Wordsworth, Elizabeth Barrett Browning, Robert Browning, W. B. Yeats, T. S. Eliot, Langston Hughes, Gertrude Stein, Gwendolyn Brooks, Elizabeth Bishop, and Derek Walcott, among others. Preregistration required; see under English Department. WR, HU

*** ENGL 127a or b, Readings in American Literature** Staff

Introduction to the American literary tradition in a variety of poetic and narrative forms and in diverse historical contexts. Emphasis on developing skills of literary interpretation and critical writing; diverse linguistic and social histories; and the place

of race, class, gender, and sexuality in American literary culture. Authors may include Phillis Wheatley, Henry David Thoreau, Herman Melville, Walt Whitman, Emily Dickinson, Frederick Douglass, Gertrude Stein, Langston Hughes, Ralph Ellison, Flannery O'Connor, Allen Ginsberg, Chang-Rae Lee, and Toni Morrison, among others. WR, HU

*** ENGL 128a or b, Readings in Comparative World English Literatures** Staff

An introduction to the literary traditions of the Anglophone world in a variety of poetic and narrative forms and historical contexts. Emphasis on developing skills of literary interpretation and critical writing; diverse linguistic, cultural and racial histories; and on the politics of empire and liberation struggles. Authors may include Daniel Defoe, Mary Prince, J. M. Synge, James Joyce, C. L. R. James, Claude McKay, Jean Rhys, Yvonne Vera, Chinua Achebe, Ng#g# wa Thiong'o, J. M. Coetzee, Brian Friel, Amitav Ghosh, Salman Rushdie, Alice Munro, Derek Walcott, and Patrick White, among others. Preregistration required; see under English Department. WR, HU

*** ENGL 129a or b / HUMS 127a or b / LITR 168a or b / THST 129a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** ENGL 130a or b / LITR 169a or b, Epic in the European Literary Tradition** Staff

The epic tradition traced from its foundations in ancient Greece and Rome to the modern novel. The creation of cultural values and identities; exile and homecoming; the heroic in times of war and of peace; the role of the individual within society; memory and history; politics of gender, race, and religion. Works include Homer's *Odyssey*, Vergil's *Aeneid*, Dante's *Inferno*, Cervantes's *Don Quixote*, and Joyce's *Ulysses*. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** ENGL 150a / LING 150a, Old English** Emily Thornbury

An introduction to the language, literature, and culture of earliest England. A selection of prose and verse, including riddles, heroic poetry, meditations on loss, a dream vision, and excerpts from *Beowulf*, which are read in the original Old English. HU

ENGL 154a / FREN 216a / HUMS 134a / LITR 194a, The Multicultural Middle Ages
Staff

Introduction to medieval English literature and culture in its European and Mediterranean context, before it became monolingual, canonical, or author-bound. Genres include travel writing, epic, dream visions, mysticism, the lyric, and autobiography, from the Crusades to the Hundred Years War, from the troubadours to Dante, from the *Chanson de Roland* to Chaucer. Formerly ENGL 189. WR, HU
o Course cr

ENGL 158a, Shakespeare: Page, Stage, and Screen Staff

A lively and wide-ranging introduction to the plays of William Shakespeare: comedies, histories, tragedies, and romances, in print, on stage, and as adapted for television, film, and other media, from the early modern period to the present. In addition to giving novices and Shakespeare buffs alike a thorough grounding in the content and contexts of the plays themselves, this course aims at developing students' abilities to analyze, interpret, and take pleasure in linguistic complexity, to think critically and creatively about the relationship between text and performance, to experiment with reading like an actor, a director, a costume designer, a queer theorist, an anti-theatrical Puritan, or a sixteenth-century playgoer, and to explore enduring issues of identity, family, sexuality, race, religion, power, ambition, violence, and desire. Lectures are complemented by weekly discussion sections, conversations with practicing theater artists, a trip to the Beinecke Rare Books Library, and opportunities to see plays in performance. WR, HU o Course cr

ENGL 194a / WGSS 194a, Queer Modernisms Staff

Study of modernist literature and the historical formation of homosexual identity from the late nineteenth through mid-twentieth centuries. Topics include: sexology as a medical and disciplinary practice; decadence and theories of degeneration; the criminalization of homosexuality in the Wilde and Pemberton-Billing trials; cross-dressing and drag balls in Harlem; transsexuality and sex-reassignment surgery; lesbian periodical cultures; nightlife and cruising; gay Berlin and the rise of fascism; colonial narratives of same-sex desire; and the salon cultures of expatriate Paris. WR, HU o Course cr

ENGL 196b / FILM 160b, Introduction to Media Staff

Introduction to the long history of media. Focus on taken-for-granted infrastructures as the deep background for the digital age. History will be our major resource for understanding the present. We move through strategically selected case studies including technologies for controlling space and time, writing in its many forms, visual and auditory media, and digital media. Media theory will be taught alongside case studies. WR, HU o Course cr

* **ENGL 205a / HUMS 200a / LITR 195a / MUSI 462a, Medieval Songlines** Ardis Butterfield

Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

* **ENGL 211a / THST 315a, Acting Shakespeare** James Bundy

A practicum in acting verse drama, focusing on tools to mine the printed text for given circumstances, character, objective, and action; noting the opportunities and limitations that the printed play script presents; and promoting both the expressive freedom and responsibility of the actor as an interpretive and collaborative artist in rehearsal. The course will include work on sonnets, monologues, and scenes. Admission by audition. Preference to seniors and juniors; open to nonmajors. See Canvas for application. HU RP

* **ENGL 226a / WGSS 224a, Race and Gender in Transatlantic Literature, 1819 to the Present** Margaret Homans

Construction of race and gender in literatures of Great Britain, North America, and the Caribbean from the early nineteenth century to the present. Focus on the role of literature in advancing and contesting concepts of race and gender as features of identity and systems of power, with particular attention to the circulation of goods, people, ideas, and literary works among regions. Some authors include Charlotte Bronte, Sojourner Truth, Zora Neale Hurston, Virginia Woolf, Audre Lorde, Chimimanda Adichie, and Kabe Wilson. Second of a two-term sequence; each term may be taken independently. WR, HU

* **ENGL 234a / AFAM 206a, Literature of the Black South** Sarah Mahurin

Examination of the intersections between African American and Southern literatures, with consideration of the ways in which the American South remains a space that simultaneously represents and repels an African American ethos. HU

* **ENGL 235a / AMST 346a / HUMS 252a, Poetry and Objects** Karin Roffman

This course on 20th and 21st century poetry studies the non-symbolic use of familiar objects in poems. We meet alternating weeks in the Beinecke library archives and the Yale Art Gallery objects study classroom to discover literary, material, and biographical histories of poems and objects. Additionally, there are scheduled readings and discussions with contemporary poets. Assignments include both analytical essays and the creation of online exhibitions. WR, HU

* **ENGL 236b / AMST 330b, Dystopic and Utopian Fictions** James Berger

Attempts since the late nineteenth century to imagine, in literature, cinema, and social theory, a world different from the existing world. The merging of political critique with desire and anxiety; the nature and effects of social power; forms of authority, submission, and resistance. HU

* **ENGL 245a / HUMS 347a, Land, Liberty, and Slavery from Hobbes to Defoe** Feisal Mohamed

This course considers together several phenomena often considered separately: the conversion of arable land to pasture; the central place of property in seventeenth-century English formulations of political liberty; and the increasing racialization of forced labor in the period. We read seminal works of political theory produced in England's tumultuous seventeenth century, namely those of Hobbes and Locke. We also explore how transformations of labor and property necessarily exert influence in literature, focusing on Andrew Marvell, Aphra Behn, John Dryden, and Daniel Defoe. WR, HU

* **ENGL 246a / AMST 245a / PLSC 247a, The Media and Democracy** Joanne Lipman

In an era of "fake news," when trust in mainstream media is declining, social platforms are enabling the spread of misinformation, and new technologies are transforming the way we consume news, how do journalists hold power to account? What is the media's role in promoting and protecting democracy? Students explore topics including objectivity versus advocacy and hate speech versus First Amendment speech protections. Case studies will span from 19th century yellow journalism to the #MeToo and #BlackLivesMatter movements, to the Jan. 6 Capitol attack and the advent of AI journalism. SO

* **ENGL 251a / WGSS 251a, Experiments in the Novel: The Eighteenth Century** Jill Campbell

The course provides an introduction to English-language novels of the long eighteenth century (1688–1818), the period in which the novel has traditionally been understood to have "risen." Emphasizing the experimental nature of novel-writing in this early period of its history, the course foregrounds persistent questions about the genre as well as a literary-historical survey: What is the status of fictional characters? How does narrative sequence impart political or moral implications? How do conventions of the novel form shape our experience of gender? What kind of being is a narrator? Likely authors include Aphra Behn, Daniel Defoe, Samuel Richardson, Henry Fielding, Laurence Sterne, Maria Edgeworth, Jane Austen, Jennifer Egan, Colson Whitehead, and Richard Powers. WR, HU

* **ENGL 262a / HUMS 410a, Modernities: Nineteenth-Century Historical Narratives** Stefanie Markovits and Stuart Semmel

British historical narratives in the nineteenth century, an age often cited as the crucible of modern historical consciousness. How a period of industrialization and democratization grounded itself in imagined pasts—whether recent or distant, domestic or foreign—in both historical novels and works by historians who presented programmatic statements about the nature of historical development. WR, HU

* **ENGL 267a, Love and Desire in the Nineteenth Century** Naomi Levine

Exploration of forms of love and desire in Victorian literature, with attention to their philosophical, historical, and aesthetic contexts. How history licensed or constrained the Victorian erotic imagination; how the pleasures of reading and looking shaped nineteenth-century aesthetics; how desire drives literary genres such as the sonnet sequence, the sensation novel, elegy, the love letter, aestheticist prose. Authors may include Elizabeth Barrett Browning, Mary Elizabeth Braddon, William Morris, Christina Rossetti, Walter Pater, Pauline Johnson (Tekahionwake), Michael Field, and Oscar Wilde, with additional readings in Sappho, Dante, Hegel, Stendhal, and Freud. Visits to the Yale art collections inform discussion. WR, HU

* **ENGL 269b / HUMS 262b / LITR 204b, Modernism and Domesticity** Katie Trumpener

Exploration of turn-of-the-century European attempts to craft modernist lives: how new ideas of women's roles, childhood, and the family shaped modernist literature and art—even as modernist designers tried to change people's experience of daily surroundings. Topics include a range of New Woman novels, modernist design, fashion, and stage sets, exemplary artists' houses (Carl and Karen Larson, Vanessa and Duncan Grant), reform fashions, portraits and family portraits, experimental fiction, memoirs (Andrej Bely, Walter Benjamin, Joyce, Woolf), and children's books as designs for living. Students will have the opportunity to research in modernist periodicals or contribute to the upcoming Beinecke Text/Textile exhibit. WR, HU

* **ENGL 287a, Literature and the Future, 1887 to the Present** John Williams

A survey of literature's role in anticipating and constructing potential futures since 1887. Early Anglo-American and European futurism during the years leading up to World War I; futures of speculative fiction during the Cold War; futuristic dreams of contemporary cyberpunk. What literature can reveal about the human need to understand both what is coming and how to respond to it. WR, HU

* **ENGL 292b / HUMS 237b, Past and Present in Fiction since 1789** Katja Lindskog

Drawing on English-language literature, art, and history-writing since 1800, this class explores how the past can illuminate and complicate the ways we perceive the present. We begin with the geopolitical and social revolutions of the 1800s as seen through essays and fictions by Charles Dickens, Alice Meynell, and Thomas Carlyle, and end with the memoir-as-history of Hazel Carby's *Imperial Intimacies* (2019). Along the way, we explore a variety of approaches to making the past come alive in the present; through the "what if" posed by alternate history speculations, through didactic history in fact and fiction imagined for children, the use of the past as a site of romance, and through visual media like paintings and cinema. Throughout the course, we address questions like: how does fiction work to interpret the past? How does our interpretation of the past reflect and help us process present day concerns? Is the past best imagined as a foreign country full of exotic difference to the present, as a mirror to ourselves? HU

* **ENGL 306a / HUMS 405a, Interpretations Seminar: William Blake** Riley Soles

This course explores the world of William Blake's poetry, with an emphasis on the longer prophetic poems, in conversation with his artistic output. We locate Blake in his historical moment, responding in his poetry and art to a variety of political, philosophical, and aesthetic movements in England and elsewhere. We also see Blake as part of an evolving literary tradition, paying particular attention to his relationship with his poetic precursor John Milton, and to Romantic contemporaries such as William Wordsworth. Trips to the Beinecke Library and the Yale Center for British Art allow us to see firsthand and to think deeply about the materiality of Blake's works, as well as the complex relationships in them between text and image. Finally, we consider Blake as a radical religious thinker and innovator by analyzing his poetry's connections to modes of Biblical vision, prophecy, and apocalypse. HU

* **ENGL 326b / AMST 406b, The Spectacle of Disability** James Berger

Examination of how people with disabilities are represented in U.S. literature and culture. Ways in which these representations, along with the material realities of disabled people, frame society's understanding of disability; the consequences of such formulations. Various media, including fiction, nonfiction, film, television, and memoirs, viewed through a wide range of analytical lenses. WR, HU RP

* **ENGL 327a / AMST 319a, The Modernist Novel in the 1920s** Joe Cleary

Many of the classics of modernist fiction were published between 1920 and 1930. These novels did not come into the world as "modernist"; that term was later conferred on narrative experiments often considered bizarre at the time. As writers, the "modernists" did not conform to pre-existing social conceptions of "the writer" nor work with established systems of narrative genres; rather, they tried to remake the novel as form and bend it to new purposes. This course invites students to consider diverse morphologies of the Anglophone modernist novel in this decade and to reflect on its consequences for later developments in twentieth-century fiction. The seminar encourages careful analyses of individual texts but engages also with literary markets, patronage systems, changing world literary systems, the rise of cinema and mass and consumer cultures, and later Cold War constructions of the ideology of modernism.

WR, HU

* **ENGL 330a, Henry James** Ruth Yeazell

Selected novels by Henry James, from *Roderick Hudson* through *The Golden Bowl*. Particular attention to the international theme and to the ways in which James's later novels revisit and transform the matter of his earlier ones. Formerly ENGL 435. WR, HU

* **ENGL 335a / AMST 308a / HUMS 275a, Literatures of the Plague** James Berger

In a new era of pandemic, we have seen how widespread medical crisis has profound effects on individual life and consciousness, and on political and economic institutions and practices. Our material and psychic supply chains grow tenuous. All of life changes even as we try to preserve what we deem most valuable. We must rethink what we consider to be “essential.” Yet this is far from being a new condition. Infectious disease has been part of the human social world probably since the beginnings of urban life. The Bible describes plagues sent by God as punishment. The earliest historical depiction was by Thucydides shortly after the plague in Athens in 430 BCE. At each occasion, people have tried to witness and to understand these “visitations,” as Daniel Defoe called them. The Plague is always a medical, political, economic and an interpretive crisis. It is also a moral crisis, as people must not only try to understand but also determine how to act. This course studies accounts of pandemics, from Thucydides in Athens up to our ongoing Coronavirus outbreaks. We trace the histories of understanding that accompanied pandemics: religious, scientific, philosophical, ethical, literary. It seems to be the case that these vast, horrifying penetrations of death into the fabric of life have inspired some of our fragile and resilient species’ most strange and profound meditations.

HU

* **ENGL 363b / FILM 445b / LITR 450b, Film and Fiction in Interaction** Dudley Andrew

Beyond adaptations of complex fiction (Henry James, James Joyce) literature may underlie “original” film masterpieces (*Rules of the Game*, *Voyage to Italy*). What about the reverse? Famous novelists moonlighted in the film world (Scott Fitzgerald, Graham Greene). Others developed styles in contact with cinema (Marguerite Duras, Eileen Chang, Kazuo Ishiguro). Today are these art forms evolving in parallel and in parity under new cultural conditions? HU

* **ENGL 365a, Donne** Catherine Nicholson

Depending on whom you ask, the seventeenth-century writer and cleric John Donne was either England's greatest love poet or a total misogynist dirtbag, a man devoted to God or a heretical apostate, an upwardly mobile striver or the victim of his own passionate idealism, the author of some of the most beautiful lines of poetry and prose in the English language or the man who took that language and nearly broke it. In this class, we won't try to decide any of these arguments – though you are always welcome to pick a side – but to explore the brilliant, weird, fascinatingly complex body of writing that set them in motion. WR, HU

* **ENGL 366a / THST 398a, American Experimental Theater** Marc Robinson

Topics include the Living Theater, Happenings, Cunningham/Cage, Open Theater, Judson Dance Theater, Grand Union, Bread and Puppet Theater, Ontological-Hysteric Theater, Meredith Monk, Mabou Mines, Robert Wilson, and the Wooster Group. Open

to junior and senior Theater Studies majors, and to nonmajors with permission of the instructor. WR, HU

* **ENGL 372a, The Colonial Encounter** Caryl Phillips

Study of the various ways in which contemporary literature has represented the encounter between the center and the periphery, with special attention paid to how this operates in the context of the British Empire. WR, HU

* **ENGL 376a, Theories and Histories of the Western Novel** Joe Cleary

Widely considered the 'youngest,' most protean, and major literary form of the modern era, the novel has been associated variously with the disenchantment of premodern sacred orders, the rise of the European middle classes, the cultural articulation of the nation-state and other imagined communities, the criticism or reproduction of society, and many other purposes. This seminar offers an advanced introduction to twentieth-century theories and histories of the Western novel and considerations of the genres, techniques, and sociocultural functions associated with the novel form as it has evolved in Europe and the Americas between the eighteenth century and the present. Students taking this seminar for senior credit will write a substantial essay (20-25 pages) with a basis in research. This project should demonstrate an ability to assemble an appropriately specific reading list and engage thoughtfully with wider scholarship.

HU

* **ENGL 381b / AFAM 426b / AMST 443b, Toni Morrison & the Matter of Black Life**

Daphne Brooks

This seminar examines key texts in the Toni Morrison canon that resonate as literary masterworks, innovative in narrative and aesthetic structure as well as content, and also as historical studies, expansive and probing in their interrogations of past struggles and future possibilities for African American communities and the American body politic more broadly. We consider how her novels explore the ongoing disasters that were and are settler colonialism, the Middle Passage and the Atlantic slave trade, the systemic violence of Jim Crow segregation, the violence of patriarchy, the traumas of war and American empire, and the insidious presence of misogyny in the everyday lives of her characters. But, we also look closely at the richness of love and intimacy, the radical roots of self-fashioning, and the insurgent potentiality of mobility and aesthetic creativity coursing through the lives of her protagonists who cut a fugitive path out of slavery, ride the waves of Reconstruction, the Great Migration, Civil Rights era hope and organizing, and post-Soul searching. We read key scholarship in direct conversation with Morrison's oeuvre, and we examine her robust and demanding critical essays on American literature, on contemporary events, and on the topic of writing. HU RP

* **ENGL 388a, English Poetry in the Long 19th Century** David Bromwich

Survey of a wide range of English lyric poetry from Wordsworth to Edward Thomas. Among the authors: Coleridge, Shelley, Keats, Tennyson, Browning, Whitman, Dickinson, Melville, Eliot. Discussions each week focus on a few poems, closely considered. Prerequisite: ENGL 125, or other previous experience in interpreting major poetry. HU

* **ENGL 389a / ER&M 346a, Critical Reading Methods in Indigenous Literatures**

Tarren Andrews

This course focuses on developing critical readings skills grounded in the embodied and place-based reading practices encouraged by Indigenous literatures. Students are expected to think critically about their reading practices and environments to consciously cultivate place-based reading strategies across a variety of genres including: fiction and non-fiction, sci-fi, poetry, comic books, criticism, theory, film, and other new media. Students are required to keep a reading journal and regularly present critical reflections on their reading process, as well as engage in group annotations of primary and secondary reading materials. This course is offered during the fall and spring term and may be taken both terms for credit. During the fall term the focus is on Indigenous literatures and new media from North America produced primarily in the 21st century. Critical readings include some historical context, both pre- and post-contact, as well as Indigenous literary theory. During the spring term, the focus becomes Indigenous literatures and games in a global context with emphasis on Indigenous land relations and ecocriticism across the 20th and 21st centuries. WR, HU

* **ENGL 395a / HUMS 380a / LITR 154a, The Bible as a Literature** Leslie Brisman
Study of the Bible as a literature—a collection of works exhibiting a variety of attitudes toward the conflicting claims of tradition and originality, historicity and literariness.

WR, HU RP

* **ENGL 404a, The Craft of Fiction** Staff

Fundamentals of the craft of fiction writing explored through readings from classic and contemporary short stories and novels. Focus on how each author has used the fundamentals of craft. Writing exercises emphasize elements such as voice, structure, point of view, character, and tone. Formerly ENGL 134. HU

* **ENGL 407a, Fiction Writing** Marie-Helene Bertino

An intensive study of the craft of fiction, designed for aspiring creative writers. Focus on the fundamentals of narrative technique and peer review. Formerly ENGL 245.

* **ENGL 408a, Poetry Writing** Cynthia Zarin

An intensive study of the craft of poetry, designed for aspiring creative writers. Focus on the fundamentals of poetic technique and peer review. Formerly ENGL 246. RP

* **ENGL 412a, Literary Production: Poetry** Maggie Millner

This course provides students an in-depth look into contemporary literary production from all sides of the publishing process: that of the writer, the reader, and the editor. Under the instruction of current editors of the *Yale Review*, and housed at the *Review's* offices, this course offers students invaluable hands-on experience at a state-of-the-art literary and cultural magazine, from which they emerge with a deep understanding of how poetry is composed, read, edited, and circulated today. Reading as a magazine editor teaches students about the contemporary literary landscape and leaves them with a deeper understanding of style, form, aesthetics, and genre—as well as the hands-on practical skills involved in 21st-century publishing. Students read submissions from our queue, as well as published work by some of the submitting writers; they then discuss which pieces may merit eventual publication and why. Students also follow drafts of pieces as they go through the process of acceptance, editing, promotion, and publication. Alongside the editorial process,

students compose and revise their own original poems, becoming sharper poets by learning to read – and think – as discerning editors.

*** ENGL 413a or b, Literary Production: Prose** Staff

This course provides students with an in-depth look into contemporary literary production from all sides of the publishing process: writing, reading, and editing. Taught by current editors of *The Yale Review*, and housed at the *Review*'s offices, this course offers students invaluable hands-on experience at a state-of-the-art literary and cultural magazine. They'll emerge from it equipped with a new set of skills, making them sharper readers, bolder creative writers, and better editors. Reading as an editor offers students a unique perspective on today's literary landscape, deepens their understanding of style, form, and genre – and gives them practical skills involved in 21st-century publishing. Students are introduced to the concept of assigning pieces and thinking about what kind of magazine stories can add value to an ever-more fast-paced and reactive media landscape. They read fiction and nonfiction submissions from our queue and discuss which pieces might be worth publishing, and why. And they follow and work on drafts of pieces as they go through the process of editing, promotion, and publication. Along the way, they may also write and revise a creative piece of their own, becoming better writers by learning to read and think as editors.

*** ENGL 418a / EVST 224a, Writing About The Environment** Alan Burdick

Exploration of ways in which the environment and the natural world can be channeled for literary expression. Reading and discussion of essays, reportage, and book-length works, by scientists and non-scientists alike. Students learn how to create narrative tension while also conveying complex – sometimes highly technical – information; the role of the first person in this type of writing; and where the human environment ends and the non-human one begins. Formerly ENGL 241. Admission by permission of the instructor only. Students interested in the course should email the instructor at alan.burdick@gmail.com with the following information: 1.) A few paragraphs describing your interest in taking the class. 2.) A non-academic writing sample that best represents you. WR

*** ENGL 419a / HSAR 460a / HUMS 185a, Writing about Contemporary Figurative Art** Margaret Spillane

A workshop on journalistic strategies for looking at and writing about contemporary paintings of the human figure. Practitioners and theorists of figurative painting; controversies, partisans, and opponents. Includes field trips to museums and galleries in New York City. Formerly ENGL 247. WR, HU

*** ENGL 421a or b / ARCH 386a or b, Styles of Academic and Professional Prose** Staff

A seminar and workshop in the conventions of good writing in a specific field. Each section focuses on one academic or professional kind of writing and explores its distinctive features through a variety of written and oral assignments, in which students both analyze and practice writing in the field. Section topics, which change yearly, are listed at the beginning of each term on the English departmental website. This course may be repeated for credit in a section that treats a different genre or style of writing; may not be repeated for credit toward the major. Formerly ENGL 121. Prerequisite: ENGL 114, 115, 120, or another writing-intensive course at Yale. WR

* **ENGL 425a, Writing the Television Drama** Aaron Tracy

Crafting the television drama with a strong emphasis on creating and developing an original concept from premise to pilot; with consideration that the finest television dramas being created today aspire to literary quality. Students read original scripts of current and recent critically acclaimed series and create a series document which will include formal story and world descriptions, orchestrated character biographies, a detailed pilot outline, and two or more acts of an original series pilot. Formerly ENGL 248.

* **ENGL 434a / THST 215a, Writing Dance** Brian Seibert

The esteemed choreographer Merce Cunningham once compared writing about dance to trying to nail Jello-O to the wall. This seminar and workshop takes on the challenge. Taught by a dance critic for the *New York Times*, the course uses a close reading of exemplary dance writing to introduce approaches that students then try themselves, in response to filmed dance and live performances in New York City, in the widest possible variety of genres. No previous knowledge of dance is required. WR, HU

* **ENGL 447a, Shakespeare and the Craft of Writing Poetry** Danielle Chapman

Shakespeare's *Craft* brings students into conversation with Shakespeare's plays and his sonnets; and teaches students how to draw from his many modes when writing their own poems – without attempting to sound "Shakespearean." Over the course of the semester, we read three plays and a selection of the sonnets, pairing close readings with contemporary poems that use similar techniques. We also watch performances and learn how actors and directors find personal ways into Shakespeare's protean language and meanings. Weekly assignments include both critical responses and creative assignments, focusing on specific craft elements, such as: "The Outlandish List: How to Keep Anaphora Interesting," "Verbs: How to Hurtle a Poem Forward," "Concrete Nouns and Death-defying Descriptions," "The Poet as Culture Vulture: Collecting Contemporary Details," "Exciting Enjambments and Measured Meter" and "Finis: How to Make a Poem End." This hybrid course is an exciting blend of creative and critical writing. Students decide before midterm whether they want to take the course as a Renaissance Literature or Creative Writing Credit, and this determines whether their final project is a creative portfolio or critical paper.

* **ENGL 453a / THST 320a, Playwriting** Donald Margulies

A seminar and workshop on reading for craft and writing for the stage. In addition to weekly prompts and exercises, readings include modern American and British plays by Pinter, Mamet, Churchill, Kushner, Nottage, Williams, Hansberry, Hwang, Vogel, and Wilder. Emphasis on play structure, character, and conflict. RP

* **ENGL 456b / HUMS 427b / JDST 316b / LITR 348b, The Practice of Literary Translation** Peter Cole

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation – by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises,

and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

* **ENGL 461a, The Art and Craft of Television Drama** Derek Green

This is an advanced seminar on the craft of dramatic television writing. Each week we'll conduct an intensive review of one or two elements of craft, using scripts from the contemporary era of prestige drama. We'll read full and partial scripts to demonstrate the element of craft being studied, and employ weekly writing exercises (both in-class and by assignment) to hone our skills on the particular elements under consideration.

Students learn how to develop character backstories, series bibles, story areas, and outlines. The final assignment for the class is the completion of a working draft of a full-length script for an original series pilot. ENGL 425 and at least one other intro-level creative writing course are highly recommended. Permission of instructor or an application is required for enrollment.

* **ENGL 465a, Advanced Fiction Writing** Staff

An advanced workshop in the craft of writing fiction. May be repeated for credit with a different instructor.

* **ENGL 467a / PLSC 253a, Journalism** Steven Brill

Examination of the practices, methods, and impact of journalism, with focus on reporting and writing; consideration of how others have done it, what works, and what doesn't. Students learn how to improve story drafts, follow best practices in journalism, improve methods for obtaining, skeptically evaluating, and assessing information, as well as writing a story for others to read. The core course for Yale Journalism Scholars. No prerequisites. WR

* **ENGL 469a, Advanced Nonfiction Writing** Anne Fadiman

A seminar and workshop with the theme "At Home in America." Students consider the varied ways in which modern American literary journalists write about people and places, and address the theme themselves in both reportorial and first-person work. Application required in advance; see the English website for deadline and instructions. WR, HU

* **ENGL 474a, The Genre of the Sentence** Verlyn Klinkenborg

A workshop that explores the sentence as the basic unit of writing and the smallest unit of perception. The importance of the sentence itself versus that of form or genre. Writing as an act of discovery. Includes weekly writing assignments. Not open to first-years. HU

* **ENGL 477a / THST 321a, Production Seminar: Playwriting** Deborah Margolin

A seminar and workshop in playwriting with an emphasis on exploring language and image as a vehicle for "theatricality." Together we will use assigned readings, our own creative work, and group discussions to interrogate concepts such as "liveness," what is "dramatic" versus "undramatic," representation, and the uses and abuses of discomfort.

* **ENGL 484a, Writing Across Literary Genres** Cynthia Zarin

Students in this writing workshop explore three out of four literary genres over the semester: creative nonfiction (including personal essays and reporting), poetry, playwriting, and fiction. The first half of the semester is devoted to experimentation in three different genres; the second half is spent developing an experimental piece into a longer final project: a one act play, a long poem or set of poems, a short story, or a longer essay. We discuss the work of writers—including Shakespeare, John Donne,

Jonathan Swift, Chekhov, Virginia Woolf, W.H. Auden, James Baldwin, Elizabeth Bishop, Derek Walcott, Zadie Smith, Maggie Nelson, and Leanne Shapton – who addressed an idea from two or more perspectives. HU

*** ENGL 487a or b, Tutorial in Writing** Staff

A writing tutorial in fiction, poetry, playwriting, screenwriting, or nonfiction for students who have already taken writing courses at the intermediate and advanced levels. Conducted with a faculty member after approval by the director of undergraduate studies. Proposals must be submitted to the DUS in the previous term; deadlines and instructions are posted at english.yale.edu/undergraduate/applications-and-deadlines. Prerequisites: two courses in writing.

*** ENGL 488a or b, Special Projects for Juniors or Seniors** Staff

Special projects set up by the student in an area of particular interest with the help of a faculty adviser and the director of undergraduate studies, intended to enable the student to cover material not otherwise offered by the department. The course may be used for research or for directed reading, but in either case a term paper or its equivalent is normally required. The student meets regularly with the faculty adviser. Proposals must be signed by the faculty adviser and submitted to the DUS in the previous term; deadlines and instructions are posted at english.yale.edu/undergraduate/applications-and-deadlines.

*** ENGL 489a or b, The Creative Writing Concentration Senior Project** Cynthia Zarin

A term-long project in writing, under tutorial supervision, aimed at producing a single longer work (or a collection of related shorter works). The writing concentration accepts students with demonstrated commitment to creative writing at the end of the junior year or, occasionally, in the first term of senior year. Proposals for the writing concentration should be submitted during the designated sign-up period in the term before enrollment is intended. The project is due by the end of the last week of classes (fall term), or the end of the next-to-last week of classes (spring term). Proposal instructions and deadlines are posted at english.yale.edu/undergraduate/applications-and-deadlines.

*** ENGL 490a or b, The Senior Essay I** Jill Campbell

Students wishing to undertake an independent senior essay in English must submit a proposal to the DUS in the previous term; deadlines and instructions are posted at english.yale.edu/undergraduate/applications-and-deadlines. For one-term senior essays, the essay itself is due in the office of the director of undergraduate studies according to the following schedule: (1) end of the fourth week of classes: five to ten pages of writing and/or an annotated bibliography; (2) end of the ninth week of classes: a rough draft of the complete essay; (3) end of the last week of classes (fall term) or end of the next-to-last week of classes (spring term): the completed essay. Consult the director of undergraduate studies regarding the schedule for submission of the yearlong senior essay.

*** ENGL 491b, The Senior Essay II** Jill Campbell

Second term of the optional yearlong senior essay. Students may begin the yearlong essay in the spring term of the junior year, allowing for significant summer research, with permission of the instructor. Students must submit a proposal to the DUS in the previous term; deadlines and instructions are posted at english.yale.edu/undergraduate/applications-and-deadlines. After ENGL 490.

* **ENGL 499a, The Iseman Seminar in Poetry** Richard Deming and Louise Gluck
The Iseman Poetry Seminar provides the opportunity for students to work closely on the craft of writing original poetry with the Iseman Professor of Poetry. Discussions, feedback, assigned readings, and writing assignments are designed to deepen the student's understanding of the craft of writing and to hone their abilities in light of students' individual strengths and needs. Discussion-oriented writing workshops at the opening of the term transition to one-on-one tutorials for the rest of the semester, culminating in a final reconvening of the group at the end of the semester. The main component of the course will be weekly writing assignments, which will receive written and oral feedback from the instructor. HU

Environmental Engineering (ENVE)

* **ENVE 120a / CENG 120a / ENAS 120a, Introduction to Environmental Engineering**
John Fortner

Introduction to engineering principles related to the environment, with emphasis on causes of problems and technologies for abatement. Topics include air and water pollution, global climate change, hazardous chemical and emerging environmental technologies. Prerequisites: high school calculus and chemistry or CHEM 161, 165 or CHEM 163, 167 (may be taken concurrently) or permission of instructor. QR, SC

ENVE 210a / CENG 210a, Principles of Chemical Engineering and Process Modeling
Peijun Guo

Analysis of the transport and reactions of chemical species as applied to problems in chemical, biochemical, and environmental systems. Emphasis on the interpretation of laboratory experiments, mathematical modeling, and dimensional analysis. Lectures include classroom demonstrations. Prerequisite: MATH 120 or permission of instructor. QR, SC RP

ENVE 215b, Environmental Engineering Practice Jaehong Kim

Focus on the technical tools of environmental engineering and science, with emphasis on data acquisition and integration, experimental project design and problem solving, and science and engineering communication. Students emerge competent in the skills needed for environmental exploration and communication and armed with the tools of discovery. Prerequisite: ENVE 120.

ENVE 314a / CENG 314a, Transport Phenomena I Kyle Vanderlick

First of a two-semester sequence. Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions. Prerequisite: ENAS 194 or permission of the instructor. QR, SC RP

ENVE 315b / CENG 315b, Transport Phenomena II Amir Haji-Akbari

Unified treatment of momentum, energy, and chemical species transport including conservation laws, flux relations, and boundary conditions. Topics include convective and diffusive transport, transport with homogeneous and heterogeneous chemical reactions and/or phase change, and interfacial transport phenomena. Emphasis on

problem analysis and mathematical modeling, including problem formulation, scaling arguments, analytical methods, approximation techniques, and numerical solutions.

Prerequisite: ENAS 194 or permission of instructor. QR, SC

*** ENVE 320a / ENRG 320a / MENG 320a, Energy, Engines, and Climate** Alessandro Gomez

The course aims to cover the fundamentals of a field that is central to the future of the world. The field is rapidly evolving and, although an effort will be made to keep abreast of the latest developments, the course emphasis is on timeless fundamentals, especially from a physics perspective. Topics under consideration include: key concepts of climate change as a result of global warming, which is the primary motivator of a shift in energy supply and technologies to wean humanity off fossil fuels; carbon-free energy sources, with primary focus on solar, wind and associated needs for energy storage and grid upgrade; and, traditional power plants and engines using fossil fuels, that are currently involved in 85% of energy conversion worldwide and will remain dominant for at least a few decades. Elements of thermodynamics are covered throughout the course as needed, including the definition of various forms of energy, work and heat as energy transfer, the principle of conservation of energy, first law and second law, and rudiments of heat engines. We conclude with some considerations on energy policy and with the "big picture" on how to tackle future energy needs. The course is designed for juniors and seniors in science and engineering. Prerequisite: MENG 211 or permission from the instructor. SC

ENVE 360b / ENAS 360b, Green Engineering and Sustainable Design Julie Zimmerman

Study of green engineering, focusing on key approaches to advancing sustainability through engineering design. Topics include current design, manufacturing, and disposal processes; toxicity and benign alternatives; policy implications; pollution prevention and source reduction; separations and disassembly; material and energy efficiencies and flows; systems analysis; biomimicry; and life cycle design, management, and analysis. Prerequisites: CHEM 161, 165 or 163, 167 (or CHEM 112, 113, or 114, 115), or permission of instructor.

ENVE 373a / CENG 373a, Air Pollution Control Drew Gentner

An overview of air quality problems worldwide with a focus on emissions, chemistry, transport, and other processes that govern dynamic behavior in the atmosphere. Quantitative assessment of the determining factors of air pollution (e.g., transportation and other combustion-related sources, chemical transformations), climate change, photochemical "smog," pollutant measurement techniques, and air quality management strategies. Prerequisite: ENVE 120. QR, SC RP

*** ENVE 377b / CENG 377b, Water-Energy Nexus** Lea Winter

This course explores processes and technologies at the water-energy nexus. We utilize chemical and environmental engineering fundamentals to explore the links between maintaining clean water supply and energy security globally, as well as implications for environmental contamination and climate change. We develop a quantitative understanding of water chemistry and energy considerations for topics including traditional water and wastewater treatment, energy recovery from wastewater, membrane processes, water electrolysis for energy storage and electrochemical contaminant conversion, industrial water consumption and wastewater production, underground water sources and water for oil and gas, opportunities for reuse of

nontraditional source waters and contaminant valorization, and considerations for decentralization, resilience, and electrification. Quantitative understanding of these processes will be attained based on mass and energy balances, systems engineering, thermodynamics, and kinetics. Prerequisite: ENVE 120 or permission of instructor. The course is primarily designed for juniors and seniors majoring in environmental engineering, but students in other engineering majors are welcome. Students in non-engineering majors are also welcome but are encouraged to communicate with the instructor to make sure they have sufficient background knowledge in required mathematics. QR, SC

ENVE 416b / CENG 416b, Chemical Engineering Process Design Yehia Khalil
Study of the techniques for and the design of chemical processes and plants, applying the principles of chemical engineering and economics. Emphasis on flowsheet development and equipment selection, cost estimation and economic analysis, design strategy and optimization, safety and hazards analysis, and environmental and ethical considerations. Enrollment limited to seniors majoring in Chemical Engineering or Environmental Engineering. QR, SC RP

ENVE 438b, Environmental Organic Chemistry John Fortner
This course examines major physical and chemical attributes and processes affecting the behavior of organic compounds in environmental systems, including volatilization, sorption/attachment, diffusion, and reactivity. Emphasis is placed on legacy pollutants (e.g. TCE, PCBs, DDT) and along with emerging contaminants of concern (e.g. pharmaceuticals, explosives, etc). The course reviews basic concepts from physical chemistry and examines the relationships between chemical structure, properties, and environmental behavior of organic compounds. Physical and chemical processes important to the fate, treatment, and transformation of specific organic compounds are addressed including solubility, volatilization, partitioning, sorption/attachment, bioaccumulation, and bulk environmental transformation pathways. Equilibrium and kinetic models based on these principles are used to predict the fate and transport of organic contaminants in the environment. Priority given to seniors or permission of instructor. QR, SC

ENVE 448a, Environmental Transport Processes Menachem Elimelech
Analysis of transport phenomena governing the fate of chemical and biological contaminants in environmental systems. Emphasis on quantifying contaminant transport rates and distributions in natural and engineered environments. Topics include distribution of chemicals between phases; diffusive and convective transport; interfacial mass transfer; contaminant transport in groundwater, lakes, and rivers; analysis of transport phenomena involving particulate and microbial contaminants. Prerequisite: ENVE 120 or permission of instructor. QR, SC

* **ENVE 490a or b, Senior Project** John Fortner
Individual research and design projects supervised by a faculty member in Environmental Engineering, or in a related field with permission of the director of undergraduate studies.

Environmental Studies (EVST)

* EVST 020a, Sustainable Development in Haiti Gordon Geballe

The principles and practice of sustainable development explored in the context of Haiti's rich history and culture, as well as its current environmental and economic impoverishment. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR

* EVST 040a, Collections of the Peabody Museum David Skelly

Exploration of scientific questions through the study and analysis of objects within the Peabody Museum's collections. Formulating a research question and carrying out a project that addresses it are the core activities of the course. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

* EVST 060b, Topics in Environmental Justice Michael Fotos

This seminar introduces students to key concepts in environmental justice and to a selection of cases representing a wide range of environmental dilemmas. Course readings and discussions impart awareness of the diverse contexts in which problems of environmental justice might be studied, whether historical, geographic, racial, social, economic, political, biological, geophysical, or epistemic. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, SO

* EVST 100b / APHY 100b / ENAS 100b / EPS 105b / PHYS 100b, Energy, Environment, and Public Policy Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC

EVST 109a / HIST 109a, Climate & Environment in American History: From Columbian Exchange to Closing of the Frontier Staff

This lecture course explores the crucial role that climate and environmental conditions have played in American history from the period of European colonization to the end of the 19th century. Its focus is on the dramatic changes brought about by the encounters among Indigenous, European, and African peoples in this period, the influence of climate and climate change on these encounters, and the environmental transformations brought about by European colonization and conquest and the creation of new economies and polities (including chattel slavery). The lectures offer a new framework for organizing and periodizing North American history, based on geographical and environmental conditions rather than traditional national and political frameworks. The course provides a historical foundation for understanding contemporary American (and global) climate and environmental issues. HU

o Course cr

EVST 127a / ER&M 127a / SOCY 127a / WGSS 127a, Health and Illness in Social Context Staff

Present-day medicine and health care provide solutions to an ever-increasing array of human problems. Yet the achievement of health can be elusive. This course provides a broad introduction to the domains of health and illness in the U.S., with some coverage of international trends and topics. Students analyze how our personal health and public health are shaped by social structures, political struggles, expert knowledge, and

medical markets. Topics include the cultural and social meanings associated with health and illness; inequalities in health and health care access and provision; controversies surrounding healthcare, medical knowledge production, and medical decision-making; and the social institutions of the health care industry. None SO o Course cr

EVST 144a / EDST 144a / ER&M 211a / SOCY 144a, Race, Ethnicity, and Immigration Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations.

SO o Course cr

EVST 189b / HIST 246b, The History of Food Paul Freedman

The history of food and culinary styles from prehistory to the present, with a particular focus on Europe and the United States. How societies gathered and prepared food. Changing taste preferences over time. The influence of consumers on trade, colonization, and cultural exchange. The impact of colonialism, technology, and globalization. The current food scene and its implications for health, the environment, and cultural shifts. HU o Course cr

*** EVST 210a / GLBL 210a / SOCY 210a, The State and its Environment** Jonathan Wyrzten and Benjamin Kaplow

This course engages two core entwined questions: How does the state impact its surroundings and environment? And, how do these impact the state? The goal of this course is to give students a grounding in an interdisciplinary range of relevant social science literatures that help them think through those questions and how they relate to each other. The course addresses how states interact with and impact their ecological environment, but centers broader questions of how states relate to space, resources, populations, and to the socially constructed patterns of their physical, cultural, and economic environments. In doing so, the course aims to bridge discussions of state politics with political questions of the environment. In broadening the topic from only ecology, the class aims to help students develop a portable lens with which to examine state formation and its past and present impact in a variety of contexts: economic planning, systems of land management, military rule, taxation, and population control.

SO

*** EVST 212a / EP&E 390a / PLSC 212a, Democracy and Sustainability** Michael Fotos
Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

EVST 219a / PHIL 290a, Philosophical Environmental Ethics Staff

This is a philosophical introduction to environmental ethics. The course introduces students to the basic contours of the field and to a small number of special philosophical problems within the field. No philosophical background is required or expected. Readings are posted on Canvas and consist almost entirely of contemporary essays by philosophers and environmentalists. SO o Course cr

EVST 223a / E&EB 220a, General Ecology Staff

The theory and practice of ecology, including the ecology of individuals, population dynamics and regulation, community structure, ecosystem function, and ecological interactions at broad spatial and temporal scales. Topics such as climate change, fisheries management, and infectious diseases are placed in an ecological context.

Prerequisite: MATH 112 or equivalent. SC o Course cr

*** EVST 224a / ENGL 418a, Writing About The Environment** Alan Burdick

Exploration of ways in which the environment and the natural world can be channeled for literary expression. Reading and discussion of essays, reportage, and book-length works, by scientists and non-scientists alike. Students learn how to create narrative tension while also conveying complex – sometimes highly technical – information; the role of the first person in this type of writing; and where the human environment ends and the non-human one begins. Formerly ENGL 241. Admission by permission of the instructor only. Students interested in the course should email the instructor at alan.burdick@gmail.com with the following information: 1.) A few paragraphs describing your interest in taking the class. 2.) A non-academic writing sample that best represents you. WR

*** EVST 228a / HIST 459a / HUMS 228a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

EVST 229a / ER&M 287a / LAST 226a / SPAN 230a, Reading Environments: Nature, Culture, and Agency Luna Najera

Extreme weather, proliferation of species extinctions, climate migration, and the outbreak of pandemics can all be understood as instances of *koyaanisqatsi*, the Hopi word for life out of balance. They may also be viewed as indications that we are living in the age of the Anthropocene, a term in the natural and social sciences that acknowledges that human activities have had a radical geological impact on the planet since the onset of the Industrial revolution. In this course we study relations between humans and other-than-humans to understand how we arrived at a life out of balance. We inquire into how binary distinctions between nature and culture are made, sustained, or questioned through a diversity of meaning-making practices in Spanish, Latin American, and indigenous literature, visual culture, and material culture. The indigenous artifacts studied include Popol Vuh, poetry, petroglyphs, and documentaries by indigenous people of the Amazon, which provide opportunities for asking pressing questions: To what extent does the nature and culture binary foreclose alternative possibilities for imagining ourselves and our relation to the world? Are there ways of perceiving our world and ourselves that bypass such binaries and if so, what are they? In the final weeks of the course, we draw from our insights to investigate where the nature/culture binary figures in present discussions of environmental catastrophes and rights of nature movements in Latin America. Taught in Spanish. Prerequisite: SPAN 140 or 145, or in accordance with placement results. L5

* **EVST 234La, Field Science: Environment and Sustainability** Kealoha Freidenburg

A field course that explores the effects of human influences on the environment. Analysis of pattern and process in forested ecosystems; introduction to the principles of agroecology, including visits to local farms; evaluation of sustainability within an urban environment. Weekly field trips and one weekend field trip. SC

* **EVST 244a, Coastal Environments in a Changing World** Mary Beth Decker

The effects of human action and natural phenomena on coastal marine ecosystems. Methods used by coastal scientists to address environmental issues; challenges associated with managing and conserving coastal environments. Priority to Environmental Studies majors; open to nonmajors as space permits. SC

* **EVST 247a / EP&E 497a / PLSC 219a, Politics of the Environment** Peter Swenson

Historical and contemporary politics aimed at regulating human behavior to limit damage to the environment. Goals, strategies, successes, and failures of movements, organizations, corporations, scientists, and politicians in conflicts over environmental policy. A major focus is on politics, public opinion, corporate interests, and litigation in the U.S. regarding climate change. SO

* **EVST 255b / F&ES 255b / GLBL 282b / PLSC 215b, Environmental Law and Politics**

John Wargo

We explore relations among environmental quality, health, and law. We consider global-scale *avoidable* challenges such as: environmentally related human illness, climate instability, water depletion and contamination, food and agriculture, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We evaluate the effectiveness of laws and regulations intended to reduce or prevent environmental and health damages. Additional laws considered include rights of secrecy, property, speech, worker protection, and freedom from discrimination. Comparisons among the US and EU legal standards and precautionary policies will also be examined. Ethical concerns of justice, equity, and transparency are prominent themes. SO

* **EVST 258a / AMST 258a / ER&M 258a, Wilderness in the North American**

Imagination: Landscapes of the US Nuclear-Industrial Complex Charlotte Hecht

Since the mid-twentieth century, the drive for nuclear power—in the form of weapons and energy—has irreversibly shaped the landscapes of the North American continent, and the world. The activities of the nuclear fuel cycle (uranium mining and milling, weapons testing and production, and radioactive waste dumping) have reached every state in the country, often in devastating and uneven ways. Today, debates about nuclear weapons and the benefits of nuclear power are at the forefront of contemporary discourse. This course contextualizes these impacts and debates in the long history of post-war industrialization and militarization, a history that begins with 19th century settler-colonial conceptions of “wilderness.” Throughout the course, we investigate how cultural imaginaries of wilderness (and ideas about nature, landscape, space, and environment) are deeply related to the uneven geographies of the nuclear industrial complex, and the intersections of US imperialism, militarism, extractive capitalism, and environmental racism. Alongside this, we consider how artists, activists, and scholars are working to theorize, reframe, and reimagine the legacies of the nuclear industry.

HU

* **EVST 290b / URBN 319b, Geographic Information Systems** Charles Tomlin

A practical introduction to the nature and use of geographic information systems (GIS) in environmental science and management. Applied techniques for the acquisition, creation, storage, management, visualization, animation, transformation, analysis, and synthesis of cartographic data in digital form.

* **EVST 294a / HUMS 294a / RSEE 355a / RUSS 355a, Ecology and Russian Culture**

Molly Brunson

Interdisciplinary study of Russian literature, film, and art from the nineteenth to the twenty-first centuries, organized into four units—forest, farm, labor, and disaster. Topics include: perception and representation of nature; deforestation and human habitation; politics and culture of land-ownership; leisure, labor, and forced labor; modernity and industrialization; and nuclear technologies and disasters. Analysis of short stories, novels, and supplementary readings on ecocriticism and environmental humanities, as well as films, paintings, and visual materials. Several course meetings take place at the Yale Farm. Readings and discussions in English. HU

* **EVST 299b, Sustainable Development Goals and Implementation** Staff

Students develop an understanding of the United Nation's Sustainable Development Goals (SDGs), and focus on how to manage projects that implement the SDGs. Students develop an understanding of the global sustainability agenda, studying each SDG in detail. Students explore and acquire practical project management skills. The course also taps into the expertise and experience of professors and staff from various disciplines and schools, as well as practitioners directly from the field.

EVST 318b / AMST 236b / HIST 199b / HSHM 207b, American Energy History Paul Sabin

The history of energy in the United States from early hydropower and coal to present-day hydraulic fracturing, deepwater oil, wind, and solar. Topics include energy transitions and technological change; energy and democracy; environmental justice and public health; corporate power and monopoly control; electricity and popular culture; labor struggles; the global quest for oil; changing national energy policies; the climate crisis. WR, HU o Course cr

* **EVST 323a, Wetlands Ecology Conservation & Management** Kealoha Freidenburg

Wetlands are ubiquitous. Collectively they cover 370,000 square miles in the United States and globally encompass more than 5 million square miles. Most points on a map are less than 1 km from the nearest wetland. Yet wetlands are nearly invisible to most people. In this course we explore wetlands in all of their dimensions, including the critical services they provide to other systems, the rich biodiversity they harbor, their impact on global climate, and the links by which they connect to other systems. Additionally, wetlands are lynchpin environments for scientific policy and regulation. The overarching aim of the course is to connect what we know about wetlands from a scientific perspective to the ways in which wetlands matter for people. SC

* **EVST 324b / ANTH 322b / SAST 306b, Environmental Justice in South Asia**

Kalyanakrishnan Sivaramakrishnan

Study of South Asia's nation building and economic development in the aftermath of war and decolonization in the 20th century. How it generated unprecedented stress on natural environments; increased social disparity; and exposure of the poor and

minorities to environmental risks and loss of homes, livelihoods, and cultural resources. Discussion of the rise of environmental justice movements and policies in the region as the world comes to grips with living in the Anthropocene. . SO o Course cr

* **EVST 335a, Global Human-Wildlife Interactions** Nyeema Harris

Wildlife and humans have increasingly complex interactions, balancing a myriad of potentially positive and negative outcomes. In a highly interactive format, students evaluate the importance of human-wildlife interactions across diverse ecosystems, exacerbators influencing outcomes, and management interventions that promote coexistence. Prerequisites: EVST 223 and a quantitative course (e.g., math, statistics, modeling) SC o Course cr

* **EVST 350a, Writing the World** Verlyn Klinkenborg

This is a practical writing course meant to develop the student's skills as a writer. But its real subject is perception and the writer's authority – the relationship between what you notice in the world around you and what, culturally speaking, you are allowed to notice. What you write during the term is driven entirely by your own interest and attention. How you write is the question at hand. We explore the overlapping habitats of language – present and past – and the natural environment. And, to a lesser extent, we explore the character of persuasion in environmental themes. Every member of the class writes every week, and we all read what everyone writes every week. It makes no difference whether you are a would-be journalist, scientist, environmental advocate, or policy maker. The goal is to rework your writing and sharpen your perceptions, both sensory and intellectual. Enrollment limited to fifteen. WR

* **EVST 354a / ARCG 000 / ARCG 354a / NELC 324a, The Ancient State: Genesis and Crisis from Mesopotamia to Mexico** Harvey Weiss

Ancient states were societies with surplus agricultural production, classes, specialization of labor, political hierarchies, monumental public architecture and, frequently, irrigation, cities, and writing. Pristine state societies, the earliest civilizations, arose independently from simple egalitarian hunting and gathering societies in six areas of the world. How and why these earliest states arose are among the great questions of post-Enlightenment social science. This course explains (1) why this is a problem, to this day, (2) the dynamic environmental forces that drove early state formation, and (3) the unresolved fundamental questions of ancient state genesis and crisis, –law-like regularities or a chance coincidence of heterogenous forces? Previously HIST 204J. HU, SO

EVST 366b / AMST 364b / FILM 423b, Documentary and the Environment Charles Musser

Survey of documentaries about environmental issues, with a focus on *Darwin's Nightmare* (2004), *An Inconvenient Truth* (2006), *Food, Inc.* (2009), *GasLand* (2010), and related films. Brief historical overview, from early films such as *The River* (1937) to the proliferation of environmental film festivals. HU RP

EVST 372b / MB&B 365b, Biochemistry and Our Changing Climate Karla Neugebauer

Climate change is impacting how cells and organisms grow and reproduce. Imagine the ocean spiking a fever: cold-blooded organisms of all shapes, sizes and complexities struggle to survive when water temperatures go up 2-4 degrees. Some organisms adapt to extremes, while others cannot. Predicted and observed changes in temperature, pH

and salt concentration do and will affect many parameters of the living world, from the kinetics of chemical reactions and cellular signaling pathways to the accumulation of unforeseen chemicals in the environment, the appearance and dispersal of new diseases, and the development of new foods. In this course, we approach climate change from the molecular point of view, identifying how cells and organisms#from microbes to plants and animals#respond to changing environmental conditions. To embrace the concept of “one health” for all life on the planet, this course leverages biochemistry, cell biology, molecular biophysics, and genetics to develop an understanding of the impact of climate change on the living world. We consider the foundational knowledge that biochemistry can bring to the table as we meet the challenge of climate change. Prerequisites: MB&B 300/301 or MB&B 200/MCDB 300 or permission of the instructor. Can be taken concurrently with MB&B 301. SC

* **EVST 377b / ANTH 376b, Observing and Measuring Behavior, Part I: Study Design**

Eduardo Fernandez-Duque

This is the first course in a spring-fall sequence. The course surveys theoretical issues and practical methods relevant to studying the behavior of animals and humans, primarily in the “wild.” Topics covered include formulation of research questions, hypotheses and predictions, study design, sampling methods for studying behavior, genetics, endocrinology, ecology, climate. Students learn and practice various forms of behavioral and ecological sampling, as well as gain familiarity with some widely-used technologies that facilitate the study of behavior (e.g. radiotelemetry). Then, working around a specific research question, students design their own study. Those who choose can develop a study to be implemented during an NSF-funded Summer Program in Argentina (<https://www.owlmonkeyproject.com/open-calls>). Students who enrolled in ANTH 376 during spring 2021 when the summer program was cancelled due to the pandemic can apply to take part in the 2022 summer program in Argentina and may enroll in ANTH 377 during the fall 2022 term. Prerequisite: Some background (including high school) on evolutionary biology, animal behavior, biology recommended. Contact the Instructor if in doubt. SC, SO

* **EVST 396a or b, Independent Study: Environmental Studies** Michael Fotos

Independent research under the direction of a Yale faculty member on a special topic in Environmental Studies not covered in other courses and not the focus of the senior essay. Permission of the director of undergraduate studies and of the instructor directing the research is required. A proposal approved by the instructor must be submitted to the director of undergraduate studies by the end of the second week of classes. The instructor meets with the student regularly, in person or remotely, typically for an hour a week, and the student writes a final paper or a series of short essays.

* **EVST 399b / ARCG 399b, Agriculture: Origins, Evolution, Crises** Harvey Weiss

Analysis of the societal and environmental drivers and effects of plant and animal domestication, the intensification of agroproduction, and the crises of agroproduction: land degradation, societal collapses, sociopolitical transformation, sustainability, and biodiversity. SO

* **EVST 404a / ANTH 404a, Advanced Topics in Behavioral Ecology** Eduardo Fernandez-Duque

This seminar explores advanced topics in behavioral ecology while examining the mechanisms, function, reproductive consequences, and evolution of behavior. The main goals of the course are to: (1) discuss the primary literature in behavioral ecology,

(2) become familiar with current theory and approaches in behavioral ecology, (3) understand how to formulate hypotheses and evaluate predictions about animal behavior, (4) explore the links between behavior and related fields in ecology and evolution (e.g. ecology, conservation biology, genetics, physiology), (5) identify possible universities, research groups, and advisors for summer research or graduate studies. Students watch a mix of live and recorded talks by leading behavioral ecologists who present at the Frontiers in Social Evolution Seminar series, and they attend and participate in the hour-long discussions that follow the talk. The class meets to discuss the primary literature recommended by the presenter and to engage in small-group conversations with those who visit the course. Prerequisite: A Yale course on evolutionary biology (e.g. BIOL 104, ANTH 116, ANTH 376) or E&EB 242. Otherwise permission of instructor required. SC

* **EVST 422a / ANTH 409a / ER&M 394a / F&ES 422a / GBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove
Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities.
WR, SO

EVST 431b, The Physical Science of Climate Change Peter Raymond and Xuhui Lee
The course provides students with core knowledge on the processes controlling the earth's climate system. The first half of the class focuses on the four components of the earth climate system, providing a knowledge base on the atmospheric energy and water budgets and the roles of anthropogenic greenhouse gases, the oceans, land and cryosphere in altering these budgets. Students also learn how to run a climate GCM (general circulation model). The second half of the class focuses on impacts of climate change on a number of societal sectors including natural ecosystems, energy use, water resources, the food system and the built environment. SC

* **EVST 450a, Carbon Containment** Michael Oristaglio, Dean Takahashi, and Anastasia O'Rourke
There is growing recognition that reducing greenhouse gas (GHG) emissions alone is not sufficient to mitigate catastrophic effects of global climate change. As GHGs accumulate in the atmosphere, it is increasingly important to draw down these emissions cost-effectively in large quantities via carbon dioxide removal (CDR) and carbon capture and storage (CCS) techniques—which can be broadly described as “carbon containment.” Recognizing the urgency of the problem at hand and the need for private and philanthropic action, many large companies, investors, and donors have stepped up commitments to stabilize the climate and to achieve net zero emissions by 2050. In addition to decarbonization strategies that reduce emissions, climate leaders are investing in and purchasing credits from negative emission carbon containment projects that reduce atmospheric levels of GHGs. Currently, the options for entities to credibly meet ambitious climate goals using carbon containment approaches are very limited. This goal of this course is to: (1) teach and engage students from a range of disciplines about the existing technologies and markets for carbon containment, (2) investigate nascent or neglected carbon containment mechanisms, and (3) develop case studies highlighting strategies and risks for moving promising pre-commercial ideas from concept to practice. There are no prerequisites for this course, although familiarity

with basic climate science, policy, carbon markets, and GHG emissions inventories is helpful. SC, SO

* **EVST 463a and EVST 464b / AMST 463a and AMST 464b / FILM 455a and FILM 456b / THST 457a and THST 458b, Documentary Film Workshop** Charles Musser

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

* **EVST 473a / ARCG 473a / NELC 373a, Climate Change, Societal Collapse, and Resilience** Harvey Weiss

The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

* **EVST 496a or b, Senior Research Project and Colloquium** Michael Fotos, Jeffrey Park, and Kealoha Freidenburg

Independent research under the supervision of members of the faculty, resulting in a senior essay. Students meet with peers and faculty members regularly throughout the fall term to discuss the progress of their research. Projects should offer substantial opportunity for interdisciplinary work on environmental problems. Seniors in the BS track typically write a two semester senior essay by enrolling in EVST 496 and EVST 496. For the B.A. degree, students most often complete one term of EVST 496, in either the fall or spring semester of their senior year. Students writing the one-term essay in the BA track must also complete an additional advanced seminar in the environment. Two-term senior research projects in the BA track require the permission of the DUS. Single semester essays are permissible also for students completing a double major that involves writing a senior essay in another department or program with permission of the DUS and subject to Yale College academic regulations governing completion of two majors.

Ethics, Politics, & Economics (EP&E)

* **EP&E 214a, Classics of Ethics, Politics and Economics** Kevin Elliott

This course is designed to explore the moral and theoretical foundations, critiques, and open questions surrounding the social organization of production and governance in modern societies. A key aim of this class is to better understand the moral and philosophical background of market-based distribution, criticisms of it, and how thinkers have tried to make sense of it. HU, SO

* **EP&E 217a, Classics of EP&E—Intellectual Origins of Liberalism and Conservatism** Gregory Collins

The purpose of this course is to explore the intellectual origins of liberalism and conservatism through an EP&E framework. We discuss the tensions between collective wisdom and individual reason in the early modern period and survey the thought of thinkers in the proto-liberal and proto-conservative traditions, such as Thomas Hobbes and John Locke on sovereignty, individual autonomy, reason, and toleration; and Robert Filmer, Richard Hooker, and David Hume on order, custom, and utility. Our main object of inquiry, however, is the intellectual division that emerged between

supporters and critics of the French Revolution, the historical event that prompted the modern political identities of liberalism and conservatism. Accordingly, we examine the political, moral, and economic theories of the Revolution; reactions to the Revolution from Edmund Burke, Joseph de Maistre, and other counterrevolutionaries; critical responses to their reactions, including those from Thomas Paine, Mary Wollstonecraft, and James Mackintosh; and the impact of this debate on the evolution of liberalism and conservatism in the nineteenth and twentieth centuries in Europe and the United States. Class discussions and readings confront liberal and conservative perspectives on human nature; reason; freedom; tradition; individual rights; religion; the Enlightenment; market economies; democratic participation; and equality.

SO

EP&E 220b / PLSC 342b, Strategic Models of Politics Milan Svobik

Introduction to formal political theory including application of rational choice and game theoretic analysis. Key topics and findings include: why voters vote in elections; how candidates choose platforms; why common resources tend to be overexploited; whether the state is needed for public good provision; how electoral systems shape politicians' and voters' behavior; whether voters can hold politicians accountable for their performance in office; how constitutions affect politicians' incentives to compromise; and why countries fight wars. SO o Course cr

* **EP&E 223a / HUMS 183a / RLST 162a, Tradition and Modernity: Ethics, Religion, Politics, Law, & Culture** Andrew Forsyth

This seminar is about “tradition” – what it is and what it does – and how reflecting on tradition can help us better understand ethics, religion, politics, law, and culture. We ask: for whom and in what ways (if any) are the beliefs and practices transmitted from one generation to another persuasive or even authoritative? And how do appeals to tradition work today? We traverse a series of cases studies in different domains. Looking to ethics, we ask if rational argument means rejecting or inhabiting tradition. Next, we look at religions *as* traditions and traditions as one source of authority *within* religions. We consider appeals to tradition in conservative and progressive politics. And how the law uses decisions on past events to guide present actions. Finally, we turn to tradition in civic and popular culture with attention to “invented traditions,” the May 2023 British Coronation, and Beyoncé’s 2019 concert film “Homecoming.” HU

* **EP&E 224b / ECON 465b / GLBL 330b, Debating Globalization** Ernesto Zedillo
Facets of contemporary economic globalization, including trade, investment, and migration. Challenges and threats of globalization: inclusion and inequality, emerging global players, global governance, climate change, and nuclear weapons proliferation. Prerequisite: background in international economics and data analysis. Preference to seniors majoring in Economics or EP&E. SO RP

* **EP&E 228b / HUMS 393b / PLSC 207b, Persuasion and Its Discontents** Norma Thompson

Aristotle argues in his *Rhetoric* that knowledge in its exact form will sometimes not be enough to persuade certain audiences. What then? What strategies are available to us for disarming fierce resistance to good arguments? We consider the psychology of willful blindness and defense mechanisms, from Greek tragedy through Shakespeare, Jane Austen, and Freud. We seek to apprehend how real-life figures and literary characters alike learn to overcome belief in the constructs of their own imaginations. Debates in several politically-charged moments are analyzed: Plato and the Sophists;

Burke and Hastings; the Federalists and Anti-Federalists; 19th century abolitionists in America; Churchill on Hitler, and multiple authors on Holocaust denial. HU

* **EP&E 229b / PLSC 255b, America From Scratch** Amir Fairdosi

What would the United States look like without a Supreme Court? Without a Senate? Without states? What if the United States had *ten* presidents instead of one? Or no president at all? As radical as these constitutional propositions might sound, they were all at least considered by America’s founders. In this class, we examine such proposals—proposals considered unthinkable today, but not during the Constitutional Convention or in other countries throughout history. We read the American founding documents, speeches, and letters considering these “radical” constitutional designs and connect them to attempts to realize these reforms today. SO

* **EP&E 235b / PHIL 457b / PLSC 283b, Recent Work on Justice** Thomas Pogge

In-depth study of one contemporary book, author, or debate in political philosophy, political theory, or normative economics. Focus varies from year to year based on student interest and may include a ground-breaking new book, the life's work of a prominent author, or an important theme in contemporary political thought. HU

* **EP&E 239a / PLSC 239a, Political Representation** Amir Fairdosi

The notion of political representation lies at the center of government in the United States and much of the rest of the world. In this course, we examine the features of political representation, both in theory and practice. We ask (and possibly find ourselves struggling to answer!) such questions as: What is political representation? Should we have a representative system as opposed to something else like monarchy or direct democracy? Should representatives demographically resemble those they represent, or is that not necessary? How do things like congressional redistricting, electoral competition, and term limits affect the quality of representation? Do constituents’ preferences actually translate into policy in the United States, and if so, how? In Part I of this course, we discuss the theoretical foundations upon which representative government rests. In Part II, we move beyond theories of representation and on to the way political representation actually operates in the United States. In Part III, we move beyond the ways in which representation works and focus instead on some ways in which it doesn’t work. Proposed solutions are also explored. SO

* **EP&E 242a / PLSC 372a, Politics and Markets** Peter Swenson

Examination of the interplay between market and political processes in different substantive realms, time periods, and countries. Inquiry into the developmental relationship between capitalism and democracy and the functional relationships between the two. Investigation of the politics of regulation in areas such as property rights, social security, international finance, and product, labor, and service markets. Topics include the economic motives of interest groups and coalitions in the political process. SO

* **EP&E 246a / PLSC 330a, Participatory Democracy** Amir Fairdosi

What does democracy look like without elections? In this class, we discuss the theory and practice of “participatory” forms of democracy (i.e. those that allow and encourage citizens to influence policy directly, rather than indirectly through elected representatives). SO

* **EP&E 247b / AMST 305b / ER&M 330b / FILM 298b / SAST 262b, Digital War**

Madiha Tahir

From drones and autonomous robots to algorithmic warfare, virtual war gaming, and data mining, digital war has become a key pressing issue of our times and an emerging field of study. This course provides a critical overview of digital war, understood as the relationship between war and digital technologies. Modern warfare has been shaped by digital technologies, but the latter have also been conditioned through modern conflict: DARPA (the research arm of the US Department of Defense), for instance, has innovated aspects of everything from GPS, to stealth technology, personal computing, and the Internet. Shifting beyond a sole focus on technology and its makers, this class situates the historical antecedents and present of digital war within colonialism and imperialism. We will investigate the entanglements between technology, empire, and war, and examine how digital war – also sometimes understood as virtual or remote war – has both shaped the lives of the targeted and been conditioned by imperial ventures. We will consider visual media, fiction, art, and other works alongside scholarly texts to develop a multidisciplinary perspective on the past, present, and future of digital war.

none HU, SO

* **EP&E 250a / PLSC 354a, The European Union** David Cameron

Origins and development of the European Community and Union over the past fifty years; ways in which the often-conflicting ambitions of its member states have shaped the EU; relations between member states and the EU's supranational institutions and politics; and economic, political, and geopolitical challenges. SO

* **EP&E 286a / ECON 475a, Discrimination in Law, Theory, and Practice** Gerald

Jaynes

How law and economic theory define and conceptualize economic discrimination; whether economic models adequately describe behaviors of discriminators as documented in court cases and government hearings; the extent to which economic theory and econometric techniques aid our understanding of actual marketplace discrimination. Prerequisites: introductory microeconomics and at least one additional course in Economics, African American Studies, Ethnicity, Race, and Migration, or Women's, Gender, and Sexuality Studies.

* **EP&E 297b / ECON 471b, Topics in Cooperative Game Theory** Pradeep Dubey

The theory and applications of cooperative games. Topics include matching, bargaining, cost allocation, market games, voting games, and games on networks. Prerequisite: intermediate microeconomics.

* **EP&E 305a / AFST 366a / HIST 367a / PLSC 364a, Bureaucracy in Africa:****Revolution, Genocide, and Apartheid** Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change – apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

* **EP&E 306a / PLSC 228a, First Amendment and Ethics of Law** Karen Goodrow

This course addresses the First Amendment and freedom of speech, focusing on the ethical implications of restrictions on free speech, as well as the exercise of free speech. Course topics and discussions include the “fighting words” doctrine, hate speech, true threats, content regulated speech, freedom of speech and the internet, and the so-called “right to be forgotten.” By the end of the course, students recognize the role free speech plays in society, including its negative and positive impacts on various segments of society. Students also have an understanding of the competing interests arising from the First Amendment’s right to free speech, and can analyze how these competing interests are weighed and measured in the United States as compared with other countries. SO

* **EP&E 313a / ECON 209a, Economic Analysis of Law** Robin Landis

This course is intended to provide an introduction to the economic analysis of law. We examine the economic rationale(s) underlying various legal doctrines of both common law and statutory law, as well as the economic consequences of different legal doctrines. Previous coursework in economics, while helpful, is not a prerequisite for the course.

SO

* **EP&E 328a / PLSC 347a / S&DS 172a, YData: Data Science for Political Campaigns**

Joshua Kalla

Political campaigns have become increasingly data driven. Data science is used to inform where campaigns compete, which messages they use, how they deliver them, and among which voters. In this course, we explore how data science is being used to design winning campaigns. Students gain an understanding of what data is available to campaigns, how campaigns use this data to identify supporters, and the use of experiments in campaigns. This course provides students with an introduction to political campaigns, an introduction to data science tools necessary for studying politics, and opportunities to practice the data science skills presented in S&DS 123, YData.

QR

* **EP&E 334a / PHIL 455a, Normative Ethics** Shelly Kagan

A systematic examination of normative ethics, the part of moral philosophy that attempts to articulate and defend the basic principles of morality. The course surveys and explores some of the main normative factors relevant in determining the moral status of a given act or policy (features that help make a given act right or wrong). Brief consideration of some of the main views about the foundations of normative ethics (the ultimate basis or ground for the various moral principles). Prerequisite: a course in moral philosophy. HU

* **EP&E 335b / PLSC 395b, Parties, Interest Groups and Public Policies in Advanced Industrialized Economies** Isabela Mares

This course provides an introduction to the political science literature studying the economic and social policy institutions of contemporary capitalism. In the first part of the course, we introduce the literature examining ‘varieties of capitalist economies’ and examine the most significant factors that explain why the organization of firms, interest groups, and social policies varies significantly across advanced industrialized economies. In the second part of the course, we turn to the study of change in these institutions in recent decades. We examine how external economic factors (such as globalization) or endogenous economic transformations (such as slowdown in growth,

demographic aging) have constrained the policy choices available to labor market actors (such as unions or employers associations) and political parties. We examine the resulting policy choices made in different countries in response to these new economic constraints. Prerequisite: PLSC 116. SO

* **EP&E 336b / PLSC 258b / PLSC 841b, Democracy and Bureaucracy** Ian Turner
Exploration of what government agencies do and why; focus on issues of accountability and the role of bureaucracy in representative democracy. Understanding how bureaucracy works internally and how it is affected by interactions with other political actors and institutions. SO

* **EP&E 350a / AFST 385a / HIST 391a / HLTH 385a / PLSC 429a, Pandemics in Africa: From the Spanish Influenza to Covid-19** Jonny Steinberg
The overarching aim of the course is to understand the unfolding Covid-19 pandemic in Africa in the context of a century of pandemics, their political and administrative management, the responses of ordinary people, and the lasting changes they wrought. The first eight meetings examine some of the best social science-literature on 20th-century African pandemics before Covid-19. From the Spanish Influenza to cholera to AIDS, to the misdiagnosis of yaws as syphilis, and tuberculosis as hereditary, the social-science literature can be assembled to ask a host of vital questions in political theory: on the limits of coercion, on the connection between political power and scientific expertise, between pandemic disease and political legitimacy, and pervasively, across all modern African epidemics, between infection and the politics of race. The remaining four meetings look at Covid-19. We chronicle the evolving responses of policymakers, scholars, religious leaders, opposition figures, and, to the extent that we can, ordinary people. The idea is to assemble sufficient information to facilitate a real-time study of thinking and deciding in times of radical uncertainty and to examine, too, the consequences of decisions on the course of events. There are of course so many moving parts: health systems, international political economy, finance, policing, and more. We also bring guests into the classroom, among them frontline actors in the current pandemic as well as veterans of previous pandemics well placed to share provisional comparative thinking. This last dimension is especially emphasized: the current period, studied in the light of a century of epidemic disease, affording us the opportunity to see path dependencies and novelties, the old and the new. SO

* **EP&E 356a, Constitutional Law and Business Ethics** Gregory Collins
The purpose of this course is to explore how the U.S. Constitution and Supreme Court case law have had an impact on business and commercial activities throughout U.S. history. We first identify provisions of the Constitution that relate to economics and familiarize ourselves with methods of constitutional interpretation, including originalism and living constitutionalism. We then apply this guiding framework to our analysis of key Supreme Court cases that have addressed the Commerce Clause, the Takings Clause, the First Amendment, the Fourteenth Amendment, and a number of other constitutional provisions that relate to commercial exchange and the legal status of corporations. Additional concepts we discuss include the countermajoritarian difficulty, the rational basis test, strict scrutiny, substantive due process, fundamental rights, disparate impact, public accommodations law, antidiscrimination law, and antitrust law. The guiding question we confront is whether the courts should a.) defer to legislatures in regulating business actors; or b.) overturn democratically enacted laws to protect the economic liberties of individuals. Prerequisite: Familiarity with

major theories in the business ethics discipline (virtue ethics, deontological ethics, utilitarianism, natural rights theory) and the U.S. Constitution.

* **EP&E 380a / PLSC 313a, Bioethics, Politics, and Economics** Stephen Latham
Ethical, political, and economic aspects of a number of contemporary issues in biomedical ethics. Topics include abortion, assisted reproduction, end-of-life care, research on human subjects, and stem cell research. SO

* **EP&E 390a / EVST 212a / PLSC 212a, Democracy and Sustainability** Michael Fotos
Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

* **EP&E 399b / AMST 365b / ER&M 295b / FILM 268b, Platforms and Cultural Production** Julian Posada
Platforms – digital infrastructures that serve as intermediaries between end-users and complementors – have emerged in various cultural and economic settings, from social media (Instagram), and video streaming (YouTube), to digital labor (Uber), and e-commerce (Amazon). This seminar provides a multidisciplinary lens to study platforms as hybrids of firms and multi-sided markets with unique history, governance, and infrastructures. The thematic sessions of this course discuss how platforms have transformed cultural production and connectivity, labor, creativity, and democracy by focusing on comparative cases from the United States and abroad. The seminar provides a space for broader discussions on contemporary capitalism and cultural production around topics such as inequality, surveillance, decentralization, and ethics. Students are encouraged to bring examples and case studies from their personal experiences. Students previously enrolled in AMST 268 may not enroll in this course. HU, SO

* **EP&E 403a / GLBL 382a / PLSC 383a, Designing and Reforming Democracy** Ian Shapiro and David Froomkin
What is the best electoral system? Should countries try to limit the number of political parties? Should chief executives be independently elected? Should legislatures have powerful upper chambers? Should courts have the power to strike down democratically enacted laws? These and related questions are taken up in this course. Throughout the semester, we engage in an ongoing dialogue with the *Federalist Papers*, contrasting the Madisonian constitutional vision with subsequent insights from democratic theory and empirical political science across the democratic world. Where existing practices deviate from what would be best, we also attend to the costs of these sub-optimal systems and types of reforms that would improve them. Prerequisite: At least one prior course in American politics or comparative politics. SO

* **EP&E 471a, Directed Reading and Research** Bonnie Weir
For individual reading and research unrelated to the senior essay. Students must obtain the signature of the faculty member supervising their independent work on an Independent Study Form (available from the Ethics, Politics, and Economics registrar's office). This form must be submitted to the director of undergraduate studies at the time the student's class schedule is submitted.

* **EP&E 478b / PHIL 450b, The Problem of Evil** Keith DeRose

The challenge that evil's existence in the world poses for belief in a perfectly good and omnipotent God. The main formulations of the problem of evil; proposed ways of solving or mitigating the problem and criticism of those solutions. Skeptical theism, the free-will defense, soul-making theodicies, and doctrines of hell. HU

* **EP&E 490b / CGSC 426b / PHIL 426b / PSYC 422b, The Cognitive Science of Morality** Joshua Knobe

Introduction to the emerging field of moral cognition. Focus on questions about the philosophical significance of psychological findings. Topics include the role of emotion in moral judgment; the significance of character traits in virtue ethics and personality psychology; the reliability of intuitions and the psychological processes that underlie them. HU

* **EP&E 491a, The Senior Essay** Bonnie Weir

A one-term senior essay. The essay should fall within the student's area of concentration. If no appropriate seminar is offered in which the essay might be written, the student, in consultation with the director of undergraduate studies, should choose an appropriate member of the faculty to supervise the senior essay. Students must obtain the signature of the faculty member supervising their independent work on an Independent Study Form (available from the Ethics, Politics, and Economics registrar's office). This form must be submitted to the director of undergraduate studies at the time the student's class schedule is submitted.

* **EP&E 492a and EP&E 493a, The Yearlong Senior Essay** Bonnie Weir

A two-term senior essay. The essay should fall within the student's area of concentration. The student, in consultation with the director of undergraduate studies, should choose an appropriate member of the faculty to supervise the senior essay. Students must obtain the signature of the faculty member supervising their independent work on an Independent Study Form (available from the Ethics, Politics, and Economics registrar's office). This form must be submitted to the director of undergraduate studies at the time the student's class schedule is submitted.

EP&E 494b / AFAM 198b / CGSC 277b / EDST 177b / PHIL 177b, Propaganda, Ideology, and Democracy Jason Stanley

Historical, philosophical, psychological, and linguistic introduction to the issues and challenges that propaganda raises for liberal democracy. How propaganda can work to undermine democracy; ways in which schools and the press are implicated; the use of propaganda by social movements to address democracy's deficiencies; the legitimacy of propaganda in cases of political crisis. HU o Course cr

* **EP&E 497a / EVST 247a / PLSC 219a, Politics of the Environment** Peter Swenson
Historical and contemporary politics aimed at regulating human behavior to limit damage to the environment. Goals, strategies, successes, and failures of movements, organizations, corporations, scientists, and politicians in conflicts over environmental policy. A major focus is on politics, public opinion, corporate interests, and litigation in the U.S. regarding climate change. SO

Ethnicity, Race, & Migration (ER&M)

* ER&M 081a / MUSI 081a / SOCY 081a, **Race and Place in British New Wave, K-Pop, and Beyond** Grace Kao

This seminar introduces you to several popular musical genres and explores how they are tied to racial, regional, and national identities. We examine how music is exported via migrants, return migrants, industry professionals, and the nation-state (in the case of Korean Popular Music, or K-Pop). Readings and discussions focus primarily on the British New Wave (from about 1979 to 1985) and K-Pop (1992–present), but we also discuss first-wave reggae, ska, rocksteady from the 1960s–70s, British and American punk rock music (1970s–1980s), the precursors of modern K-Pop, and have a brief discussion of Japanese City Pop. The class focuses mainly on the British New Wave and K-Pop because these two genres of popular music have strong ties to particular geographic areas, but they became or have become extremely popular in other parts of the world. We also investigate the importance of music videos in the development of these genres. Enrollment limited to first year students. Pre-registration required: see under First Year Seminar Program. SO

ER&M 127a / EVST 127a / SOCY 127a / WGSS 127a, **Health and Illness in Social Context** Staff

Present-day medicine and health care provide solutions to an ever-increasing array of human problems. Yet the achievement of health can be elusive. This course provides a broad introduction to the domains of health and illness in the U.S., with some coverage of international trends and topics. Students analyze how our personal health and public health are shaped by social structures, political struggles, expert knowledge, and medical markets. Topics include the cultural and social meanings associated with health and illness; inequalities in health and health care access and provision; controversies surrounding healthcare, medical knowledge production, and medical decision-making; and the social institutions of the health care industry. None SO o Course cr

* ER&M 150a, **Mexicans, Mexican Americans, and the U.S. Empire** Ximena Lopez Carrillo

This course examines the history of Mexicans and Mexican Americans at the U.S.-Mexico border and their important contributions to U.S. politics and culture, from the Treaty of Guadalupe Hidalgo to the present. By looking at specific historical case studies, students learn about the impact of U.S. imperial and migratory policies on border life, the tensions and solidarity bonds between Mexicans and Mexican Americans, the formation of a hybrid Mexican American culture, and the long history of popular resistance and activism. As students learn about this history, they reflect on the politics behind our historical memory surrounding Mexicans and Mexican Americans, and the newest methodological proposals to recover their history. HU, SO

ER&M 187b / AMST 133b / HIST 107b, **Introduction to American Indian History** Ned Blackhawk

Survey of American Indian history, beginning with creation traditions and migration theories and continuing to the present day. Focus on American Indian nations whose homelands are located within the contemporary United States. Complexity and change within American Indian societies, with emphasis on creative adaptations to changing historical circumstances. HU o Course cr

ER&M 200a, Introduction to Ethnicity, Race, and Migration Staff

Historical roots of contemporary ethnic and racial formations and competing theories of ethnicity, race, and migration. Cultural constructions and social practices of race, ethnicity, and migration in the United States and around the world. HU, SO
o Course cr

* **ER&M 207a / LING 107a, Linguistic Diversity & Endangerment** Claire Bowers
“How many languages are there in the world?” – what does this question even mean? What would a satisfying answer look like? This class comprises a geographical and historical survey of the world’s languages and attends to how languages can differ from one another. According to UNESCO, more than half of world languages (virtually all of which are spoken by indigenous communities) will have gone extinct by the end of the century. We interrogate notions like language endangerment, shift and death, and we consider the threats that these pose to global linguistic diversity. There is a striking correlation between the geographic distribution of linguistic and biological diversity, although proportionally, far more languages are endangered than biological species; the question of *how* (and *why?* and *whether?*) to respond to that situation is a matter of serious import for the 21st Century. This course surveys the various ways in which the world’s linguistic diversity and language ecologies can be assessed – and discusses the serious threats to that diversity, why this might be a matter of concern, and the principle of linguistic human rights. Students have the opportunity to investigate a minority language in some depth and report on its status with respect to the range of issues discussed in class. SO

ER&M 211a / EDST 144a / EVST 144a / SOCY 144a, Race, Ethnicity, and Immigration
Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations.
SO o Course cr

ER&M 219a / HIST 219a / JDST 200a / MMES 149a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

*** ER&M 224a / AMST 368a, Marxism and Social Movements in the Nineteenth Century** Michael Denning

The history and theory of the socialist and Marxist traditions from their beginnings in the early nineteenth century to the world upheavals of 1917–19. Relations to labor, feminist, abolitionist, and anticolonial movements.

ER&M 231b / HIST 232b, Hitler, Stalin, and Us Timothy Snyder

This course presents the study of the Stalinist and Nazi regimes, reviews the mass atrocities of the mid-twentieth century, and considers the legacies of these regimes in contemporary memory and politics. HU

ER&M 238a / AFAM 192a / AFST 238a / AMST 238a, Third World Studies Staff

Introduction to the historical and contemporary theories and articulations of Third World studies (comparative ethnic studies) as an academic field and practice.

Consideration of subject matters; methodologies and theories; literatures; and practitioners and institutional arrangements. SO o Course cr

ER&M 243b / AMST 234b / HIST 188b / RLST 342b, Spiritual But Not Religious

Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

*** ER&M 257a / WGSS 206a, Transnational Approaches to Gender & Sexuality** Evren

Savci

Examination of transnational debates about gender and sexuality as they unfold in specific contexts. Gender as a category that can or cannot travel; feminist critiques of liberal rights paradigms; globalization of particular models of gender/queer advocacy; the role of NGOs in global debates about gender and sexuality. WR

*** ER&M 258a / AMST 258a / EVST 258a, Wilderness in the North American**

Imagination: Landscapes of the US Nuclear-Industrial Complex Charlotte Hecht

Since the mid-twentieth century, the drive for nuclear power—in the form of weapons and energy—has irreversibly shaped the landscapes of the North American continent, and the world. The activities of the nuclear fuel cycle (uranium mining and milling, weapons testing and production, and radioactive waste dumping) have reached every state in the country, often in devastating and uneven ways. Today, debates about nuclear weapons and the benefits of nuclear power are at the forefront of contemporary discourse. This course contextualizes these impacts and debates in the long history of post-war industrialization and militarization, a history that begins with 19th century settler-colonial conceptions of “wilderness.” Throughout the course, we investigate how cultural imaginaries of wilderness (and ideas about nature, landscape, space, and environment) are deeply related to the uneven geographies of the nuclear industrial complex, and the intersections of US imperialism, militarism, extractive capitalism, and environmental racism. Alongside this, we consider how artists, activists, and scholars are working to theorize, reframe, and reimagine the legacies of the nuclear industry.

HU

*** ER&M 277a / AFST 277a / ANTH 235a, Introduction to Critical Border Studies**

Leslie Gross-Wyrtzen

This course serves as an introduction into the major themes and approaches to the study of border enforcement and the management of human mobility. We draw upon a diverse range of scholarship across the social sciences as well as history, architecture, and philosophy to better understand how we find ourselves in this present “age of walls” (Tim Marshall 2019). In addition, we take a comparative approach to the study of borders—examining specific contemporary and historical cases across the world

in order to gain a comprehensive view of what borders are and how their meaning and function has changed over time. And because there is “critical” in the title, we explicitly evaluate the political consequences of borders, examine the sorts of resistances mobilized against them, and ask what alternative social and political worlds might be possible. SO

*** ER&M 278a / LAST 228a / SPAN 228a, Borders & Globalization in Hispanophone Cultures** Luna Najera

The borders that constitute the geographical divisions of the world are contingent, but they can have enormous ordering power in the lives of people and other beings. Human-made borders can both allow and disallow the flow of people and resources. Like geographical borders, social borders such as race, caste, class, and gender can form and perpetuate privileged categories of humans that restrict access of excluded persons to natural resources, education, security, and social mobility. Thus, bordering can differentially value human lives. Working with the premise that borders are sites of power, in this course we study bordering and debordering practices in the Hispanic cultures of Iberia, Latin America, and North America, from the 1490s to the present. Through analyses of a wide range of texts students will investigate the multiple ways in which social, cultural, and spatial borders are initiated, expressed, materialized, and contested. Some of the questions that will guide our conversations are: What are social borders and what are the processes through which they perdure? How do the effects of local practices that transcend borders (e.g., environmental pollution, deforestation) change our understanding of borders? How does globalization change discourse about borders? (To be conducted in Spanish.) Prerequisite: SPAN 140 or 145, or in accordance with placement results. A maximum of one course in the 200-230 range may count as an elective toward the Spanish major. L5

ER&M 282a / AMST 272a / HIST 183a / WGSS 272a, Asian American History, 1800 to the Present Staff

An introduction to the history of East, South, and Southeast Asian migrations and settlement to the United States from the late eighteenth century to the present. Major themes include labor migration, community formation, U.S. imperialism, legal exclusion, racial segregation, gender and sexuality, cultural representations, and political resistance. HU o Course cr

*** ER&M 285a / LAST 305a / SOCY 305a, Latin American Immigration to the United States: Past, Present, and Future** Angel Escamilla Garcia

Immigration from Latin America is the one of the most important and controversial issues in the United States today. The family separation crisis, the infamous border wall, and the Dream Act dominate political debate. Latinos – numbering more than 60 million in the U.S. – are a large, heterogeneous, and growing group with a unique social, political, and cultural history. This course explores key current issues in immigration, as well as the history of Latin American migration to the U.S., with the aim of providing students the tools necessary to thoughtfully participate in current debates. SO

*** ER&M 286a / AMST 233a / WGSS 232a, Porvida: Latinx Queer Trans Life** Deb Vargas

This course provides an introduction to Latinx queer trans* studies. We approach the field of Latinx queer trans* studies as an ongoing political project that emerges from social justice activism, gay/lesbian/queer/trans studies, critical race feminism, cultural

practitioners, among other work. We pay particular attention to the keywords “trans,” “queer,” “Chicanx,” and “Latinx” by placing them in productive tension with each other through varied critical genealogies. HU, SO

ER&M 287a / EVST 229a / LAST 226a / SPAN 230a, Reading Environments: Nature, Culture, and Agency Luna Najera

Extreme weather, proliferation of species extinctions, climate migration, and the outbreak of pandemics can all be understood as instances of *koyaanisqatsi*, the Hopi word for life out of balance. They may also be viewed as indications that we are living in the age of the Anthropocene, a term in the natural and social sciences that acknowledges that human activities have had a radical geological impact on the planet since the onset of the Industrial revolution. In this course we study relations between humans and other-than-humans to understand how we arrived at a life out of balance. We inquire into how binary distinctions between nature and culture are made, sustained, or questioned through a diversity of meaning-making practices in Spanish, Latin American, and indigenous literature, visual culture, and material culture. The indigenous artifacts studied include Popol Vuh, poetry, petroglyphs, and documentaries by indigenous people of the Amazon, which provide opportunities for asking pressing questions: To what extent does the nature and culture binary foreclose alternative possibilities for imagining ourselves and our relation to the world? Are there ways of perceiving our world and ourselves that bypass such binaries and if so, what are they? In the final weeks of the course, we draw from our insights to investigate where the nature/culture binary figures in present discussions of environmental catastrophes and rights of nature movements in Latin America. Taught in Spanish. Prerequisite: SPAN 140 or 145, or in accordance with placement results. L5

*** ER&M 289a / AFAM 205a / AMST 225a, Writing American Studies: Food as Story & Critical Lens** Alison Kibbe

This writing seminar examines food as an entry to the interdisciplinary approaches of American Studies. We explore how food can help us think critically about our world, as well as how we can write critically about food. Food serves as a useful entry point to interdisciplinary American and Ethnic Studies because centering food requires that we think across history, cultural studies, anthropology, science, ecology, aesthetics, embodiment, and more. Through food studies we gain a unique understanding of the peoples, cultures, plants, animals, mobilities, and flavors that shape societies, communities, and individuals. With a focus on Caribbean, Black, Latinx, and indigenous perspectives, we use critical food studies to examine questions about place, history, racial formations, migration, and above all, different approaches to writing, drafting, editing, and re-writing. WR

*** ER&M 291a / AFAM 352a / AMST 438a / LITR 295a / WGSS 343a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

* **ER&M 292a / AFAM 239a / AMST 461a / EDST 209a / WGSS 202a, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

* **ER&M 295b / AMST 365b / EP&E 399b / FILM 268b, Platforms and Cultural Production** Julian Posada

Platforms – digital infrastructures that serve as intermediaries between end-users and complementors – have emerged in various cultural and economic settings, from social media (Instagram), and video streaming (YouTube), to digital labor (Uber), and e-commerce (Amazon). This seminar provides a multidisciplinary lens to study platforms as hybrids of firms and multi-sided markets with unique history, governance, and infrastructures. The thematic sessions of this course discuss how platforms have transformed cultural production and connectivity, labor, creativity, and democracy by focusing on comparative cases from the United States and abroad. The seminar provides a space for broader discussions on contemporary capitalism and cultural production around topics such as inequality, surveillance, decentralization, and ethics. Students are encouraged to bring examples and case studies from their personal experiences. Students previously enrolled in AMST 268 may not enroll in this course. HU, SO

* **ER&M 298b / AMST 307b / HIST 117b / LITR 375b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. #t pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. n/a WR, HU

* **ER&M 300a, Comparative Ethnic Studies** Hi'ilei Hobart

Introduction to the methods and practice of comparative ethnic studies. Examination of racial formation in the United States within a transnational framework. Legacies of colonialism, slavery, and racial exclusion; racial formation in schools, prisons, and citizenship law; cultural politics of music and performance; social movements; and postcolonial critique. SO

* **ER&M 308a / AMST 398a / HIST 158, American Indian Law and Policy** Ned Blackhawk

Survey of the origins, history, and legacies of federal Indian law and policy during two hundred years of United States history. The evolution of U.S. constitutional law and political achievements of American Indian communities over the past four decades.

WR, HU

* **ER&M 309a, Traditional Medicine, Science, and the Politics of Healing in the Americas** Ximena Lopez Carrillo

This course examines the history of traditional medicines, the popular attitudes toward them, and the politics of healing after the emergence of modern medicine in the Americas. By reading historical accounts of different healing traditions, students observe how different healing traditions propose different ways to understand the world and learn to situate the history of traditional and complementary medicine within larger fields of inquiry such as the history of science in the Americas, medical anthropology, migration, and cultural history. Additionally, students read about contemporary issues and debates surrounding traditional medicine such as health autonomy, health disparities, medical pluralism, globalization, and proposals for the decolonization of American healthcare. The class readings include topics such as indigenous medicine, curanderismo, yoga, acupuncture, and santería. HU, SO

* **ER&M 316a, Indigenous Food Sovereignty** Hi'ilei Hobart

What does it mean to be food sovereign? Are contemporary American diets colonial? This course takes a comparative approach to understanding how and why food is a central component of contemporary sovereignty discourse. More than just a question of eating, Indigenous foodways offer important critiques of, and interventions to, the settler state: food connects environment, community, public health, colonial histories, and economics. Students theorize these connections by reading key works from across the fields of critical indigenous studies, food studies, philosophy, history, and anthropology. In doing so, we question the potentialities of enacting food sovereignty within the settler state, whether dietary decolonization is possible in the so-called age of the Anthropocene, and the limits of working within and against today's legacies of the colonial food system. Students previously enrolled in ER&M 040 are not eligible to enroll in this course. HU, SO

* **ER&M 319a / AMST 350a / SAST 475a / THST 350a, Drama in Diaspora: South Asian American Theater and Performance** Shilarna Stokes

South Asian Americans have appeared on U.S. stages since the late nineteenth century, yet only in the last quarter century have plays and performances by South Asian Americans begun to dismantle dominant cultural representations of South Asian and South Asian American communities and to imagine new ways of belonging. This seminar introduces you to contemporary works of performance (plays, stand-up sets, multimedia events) written and created by U.S.-based artists of South Asian descent as well as artists of the South Asian diaspora whose works have had an impact on U.S. audiences. With awareness that the South Asian American diaspora comprises multiple, contested, and contingent identities, we investigate how artists have worked to manifest complex representations of South Asian Americans onstage, challenge institutional and professional norms, and navigate the perils and pleasures of becoming visible. No prior experience with or study of theater/performance required. Students in all years and majors welcome. HU

* **ER&M 322a / AMST 361a, Comparative Colonialisms** Lisa Lowe

In this interdisciplinary seminar, students examine several historical and ongoing modes of colonialism—settler colonialism, slavery, and overseas empire, as well as their various contestations—approaching the study through readings in history, anthropology, political economy, literature, arts, and other materials. We discuss questions such as: In what ways are settler colonialism, slavery, and empire independent, and in what ways do they articulate with one another? How have colonialisms been integral to the emergence of the modern U.S. nation-state and economy? How does one read the national archive and engage the epistemology of evidence? What are the roles of cultural practices, narrative, and visual arts in countering colonial power? HU, SO

* **ER&M 323b, Documenting Refugees in New Haven** Quan Tran

This hands-on mixed methods seminar explores the historical and contemporary experiences of refugees in New Haven. The course examines the historical contexts that have led to the resettlements of different refugee populations in New Haven as well as contemporary issues concerning these communities. Through workshops, students gain qualitative research skills by exploring oral history, archival research, and ethnographic participant observation as complementary methods to document and study refugee communities in New Haven. The course also attends to questions of representation, ethics, power dynamics, and knowledge production in documenting and studying underrepresented and vulnerable communities. HU, SO

* **ER&M 324a or b / WGSS 325a or b, Asian Diasporas since 1800** Quan Tran

Examination of the diverse historical and contemporary experiences of people from East, South, and Southeast Asian ancestry living in the Americas, Australia, Africa, the Middle East, Asia, and Europe. Organized thematically and comparative in scope, topics include labor migrations, community formations, chain migrations, transnational connections, intergenerational dynamics, interracial and ethnic relations, popular cultures, and return migrations. HU, SO

* **ER&M 330b / AMST 305b / EP&E 247b / FILM 298b / SAST 262b, Digital War**

Madiha Tahir

From drones and autonomous robots to algorithmic warfare, virtual war gaming, and data mining, digital war has become a key pressing issue of our times and an emerging field of study. This course provides a critical overview of digital war, understood as the relationship between war and digital technologies. Modern warfare has been shaped by digital technologies, but the latter have also been conditioned through modern conflict: DARPA (the research arm of the US Department of Defense), for instance, has innovated aspects of everything from GPS, to stealth technology, personal computing, and the Internet. Shifting beyond a sole focus on technology and its makers, this class situates the historical antecedents and present of digital war within colonialism and imperialism. We will investigate the entanglements between technology, empire, and war, and examine how digital war—also sometimes understood as virtual or remote war—has both shaped the lives of the targeted and been conditioned by imperial ventures. We will consider visual media, fiction, art, and other works alongside scholarly texts to develop a multidisciplinary perspective on the past, present, and future of digital war.

none HU, SO

* **ER&M 332b, Cultural and Racial History of Mental Health** Ximena Lopez Carrillo
 Since the 1960s, social scientists have analyzed how the scientific ideas about mental illness, mental health policies, institutions, healing practices, and popular discourses surrounding mental health have been influenced by the social and cultural contexts. This course introduces students to the debates and questions guiding the history of mental health since the Civil Rights and the Psychiatric Survivor Movements in the 1960s, especially those that relate to Critical Race Theory. Through primary sources and secondary literature, students learn about the intersections between mental illness, race, and ethnicity. The class materials include topics such as disability justice, psychopharmacology, the community mental health movement, and the history of asylums in a comparative perspective. SO

* **ER&M 335a / FREN 416a / WGSS 416a, Social Mobility and Migration** Morgane Cadieu

The seminar examines the representation of upward mobility, social demotion, and interclass encounters in contemporary French literature and cinema, with an emphasis on the interaction between social class and literary style. Topics include emancipation and determinism; inequality, precarity, and class struggle; social mobility and migration; the intersectionality of class, race, gender, and sexuality; labor and the workplace; homecomings; mixed couples; and adoption. Works by Nobel Prize winner Annie Ernaux and her peers (Érison, Gay, Harchi, Linhart, Louis, NDiaye, Taïa). Films by Cantet, Chou, and Diop. Theoretical excerpts by Berlant, Bourdieu, and Rancière. Students will have the option to put the French corpus in dialogue with the literature of other countries. Conducted in French. HU

* **ER&M 342b / HIST 372Jb / LAST 372b, Revolutionary Change and Cold War in Latin America** Greg Grandin

Analysis of revolutionary movements in Latin America against the backdrop of the Cold War. Critical examination of popular images and orthodox interpretations. An interdisciplinary study of the process of revolutionary change and cold war at the grassroots level. WR, HU

* **ER&M 344a / SOCY 344a / URBN 318a, Informal Cities** Leigh-Anna Hidalgo Newton

The informal sector is an integral and growing part of major global cities. With a special focus on the context of U.S. cities, students examine where a burgeoning informality is visible in the region's everyday life. How planners and policymakers address informality is an important social justice challenge. But what is the informal sector, or urban informality, or the informal city? This class addresses such questions through a rigorous examination of the growing body of literature from Sociology, Latinx Studies, Urban Planning, and Geography. We reflect on the debates and theories in the study of informality in the U.S. and beyond and gain an understanding of the prevalence, characteristics, rationale, advantages and disadvantages, and socio-spatial implications of informal cities. More specifically, we examine urban informality in work – examining street vendors, sex workers, and waste pickers – as well as housing, and the built environment. SO

* **ER&M 346a / ENGL 389a, Critical Reading Methods in Indigenous Literatures**
 Tarren Andrews

This course focuses on developing critical readings skills grounded in the embodied and place-based reading practices encouraged by Indigenous literatures. Students

are expected to think critically about their reading practices and environments to consciously cultivate place-based reading strategies across a variety of genres including: fiction and non-fiction, sci-fi, poetry, comic books, criticism, theory, film, and other new media. Students are required to keep a reading journal and regularly present critical reflections on their reading process, as well as engage in group annotations of primary and secondary reading materials. This course is offered during the fall and spring term and may be taken both terms for credit. During the fall term the focus is on Indigenous literatures and new media from North America produced primarily in the 21st century. Critical readings include some historical context, both pre- and post-contact, as well as Indigenous literary theory. During the spring term, the focus becomes Indigenous literatures and games in a global context with emphasis on Indigenous land relations and ecocriticism across the 20th and 21st centuries. WR, HU

* **ER&M 352a / ANTH 393a, Writing Creative Ethnographies: Exploring Movement, Poetics, and Collaboration** Jill Tan

Students in this seminar on creative ethnographic writing and experimental research design explore and represent anthropological insight beyond academic argumentation – through movement, art, poetics, and collaborative writing. Course readings and media focus on migration, colonialisms, and anti-blackness, situating anthropology's disciplinary epistemologies, empirics, ethics in integral relation to an understanding its limits, collaborative potentialities, and multimodal methods. Students need not have a background in anthropology; they should however come with a curiosity about working with creative methods and ethnography – a set of practices to render and understand local forms of everyday life as imbricated with global forces. WR, HU, SO

* **ER&M 356a / WGSS 135a, Latina/x/e Feminism** Deb Vargas

The course introduces students to Latina/x/e feminist theories. We focus on historical and contemporary writings by and about Chicana, Puerto Rican, Central American, and other Latina/x/e feminist writers and activists. The course draws from interdisciplinary scholarship addressing the intellectual landscape of Latina/x/e and critical race feminist theories and social movement activist organizing. While this course approaches Latina/x/e feminist theories and activism as often having emerged in relation to U.S. nation-making projects we will consider this work with the understanding that projects of Latina/x/e feminism should be understood as cross-border, transnational, and multi-scalar critiques of nation-state violence. HU

* **ER&M 357a / AMST 328a / HIST 112a / HUMS 418a, "None Dare Call It Conspiracy:" Paranoia and Conspiracy Theories in 20th and 21st C. America**
Staff

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode

of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU

* **ER&M 359a / HIST 345Ja, Gender and the State in Latin America and the Caribbean** Anne Eller

This seminar offers an introduction to historical constructions of gender identity and gendered politics in Latin America and the Caribbean from pre-colonial native societies into the twentieth century. We begin with an analysis of gender in the Inca empire and several lowland societies, focusing on spirituality, agriculture, and land tenure particularly. The arrival of Spanish colonialism brings tremendous and complex transformations to the societies that we consider; we analyze discourses of honor, as well as how various subjects navigated the violence and the transforming colonial state. Our readings turn to Caribbean slavery, where studies of gendered experiences of enslavement and resistance have grown considerably in recent decades. Building on these insights, we analyze the gendered experiences of abolition and inclusion into contentious new Latin American and Caribbean nations of the nineteenth century. In the twentieth century, we consider some of the most salient analyses of the growth of state power, including dictatorships, in multiple sites. Throughout we maintain an eye for principle questions about representation, reproduction, inclusion, political consciousness, sexuality, migration, kinship, and revolutionary struggle through a gendered lens. WR, HU

* **ER&M 362a, Translation: Theory, Methods, and Practice** David Francis

This course explores the challenges, theories, and pitfalls of translation, focusing on the ways in which acts of translation cross, create, or redefine (socio-)linguistic, national, cultural, and political borders. Special attention is paid to questions of race, economics, gender, sexuality, nationality, post-nationality, multilingualism, citizenship, exile, and their various intersections at the site of literary translation. As part of their final projects, students select and translate a short literary or visual-literary work or critique and re-translate a previously translated literary and/or visual text. Proficiency in a second language is not required. This course meets the methods requirement for the ER&M major.

* **ER&M 364a / HIST 334Ja / LAST 334a, Ethnicity, Nationalism, and the Politics of Knowledge in Latin America** Marcela Echeverri Munoz

Examination of ethnicity and nationalism in Latin America through the political lens of social knowledge. Comparative analysis of the evolution of symbolic, economic, and political perspectives on indigenous peoples, peasants, and people of African descent from the nineteenth century to the present. Consideration of the links between making ethnic categories in the social sciences and in literature and the rise of political mechanisms of participation and representation that have characterized the emergence of cultural politics. WR, HU RP

* **ER&M 376b / MGRK 304b / PLSC 376b / SOCY 307b, Extreme and Radical Right Movements** Paris Aslanidis

Extreme and radical right movements and political parties are a recurrent phenomenon found in most parts of the world. Discussion of their foundational values and the causes of their continuous, even increasing, support among citizens and voters. SO

* **ER&M 378a / HSAR 463a, Material Histories of Photography** Jennifer Raab

While we often see photographs mediated through screens, they are singular objects with specific material histories. Through Yale's collections, this course explores these histories from the nineteenth century to the present and how they intersect with constructions of class, race, gender, and the non-human world; the ongoing processes of settler-colonialism; and both modern environmental conservation and ecological crisis. HU

* **ER&M 379a, Indigenous Cultures in a Global Context** Diana Onco-Ingyadet

This course explores and examines the cultural production of Indigenous peoples from Australia, South America, Africa, and North America through examination of music, art, entrepreneurship, podcasts, and other forms of expression with attention to their Indigenous identities and the discourses around modernity. Indigenous studies is dominated by historical approaches. While histories of Indigenous peoples are important, the contemporary practices, narratives, and politics of Indigenous peoples also deserve our critical attention. In an effort to illuminate Indigenous peoples' experiences and forms of expression and grappling with both tradition and modernity, students examine the ways in which Indigenous peoples around the world come at the same questions, challenges, and debates from their local, specific contexts. SO

* **ER&M 380a / AFAM 397a / WGSS 381a, New Developments in Global African Diaspora Studies** Fatima El-Tayeb

This course traces recent developments in African Diaspora Theory, among them Afropessimism, Queer of Color Critique, Black Trans Studies and Afropolitanism. We pay particular attention to interactions between theory, art, and activism. The scope is transnational with a focus on, but not restricted to, the Anglophone Diaspora. Each session roughly follows this structure: One theoretical text representing a recent development in African diaspora studies, one earlier key text that the reading builds on, one theoretical text that does not necessarily fall under the category of diaspora studies but speaks to our topic and one text that relates to the topic but uses a non-theoretical format. Students are expected to develop their own thematically related project over the course of the semester. Preference given to juniors and seniors. Email instructor for more information. HU, SO

* **ER&M 383a / SOCY 383a, Central Americans in the U.S.** Leigh-Anna Hidalgo Newton

This course is an interdisciplinary survey of the social, historical, political, economic, educational, and cultural experiences of Central American immigrants and their children in the United States. The primary objective of the course is to introduce students to several contemporary experiences and issues in the U.S. Central American community. Focusing mostly on Guatemalan, Honduran, and Salvadoran immigrants – the three largest groups in the United States – we explore the social structures that constrain individuals as well as the strategies and behaviors immigrants and their communities have taken to establish their presence and make a home in U.S. society and stay connected to their countries of origin. Students gain a critical understanding of Central American identities, particularly as these have been constructed through the intersection of race, ethnicity, gender, sexuality, and legal status. SO

* **ER&M 391a / HSHM 455a, Eugenics and its Afterlives** Daniel HoSang

This course examines the influence of Eugenics research, logics, and ideas across nearly every academic discipline in the 20th century, and the particular masks, tropes, and

concepts that have been used to occlude attentions to these legacies today. Students make special use of the large collection of archives held within Yale Special Collections of key figures in the American Eugenics Society. Students work collaboratively to identify alternative research practices and approaches deployed in scholarly and creative works that make racial power visible and enable the production of knowledge unburdened by the legacies of Eugenics and racial science. Prerequisite: ER&M 200.

HU

* **ER&M 392a / HIST 131Ja, Urban History in the United States, 1870 to the Present**

Jennifer Klein

The history of work, leisure, consumption, and housing in American cities. Topics include immigration, formation and re-formation of ethnic communities, the segregation of cities along the lines of class and race, labor organizing, the impact of federal policy, the growth of suburbs, the War on Poverty and Reaganism, and post-Katrina New Orleans. WR, HU

* **ER&M 394a / ANTH 409a / EVST 422a / F&ES 422a / GLBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove

Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities.

WR, SO

* **ER&M 406b / EDST 211b, Latinx Communities and Education in the United States**

Diana Cordova-Cobo

This course is an interdisciplinary and comparative study of Latinx communities and their experiences with K-12 education in the United States. The Latinx population in the United States continues to grow, with the Census Bureau projecting that the Latinx population will comprise 27.5 percent of the nation's population by 2060.[1] In fact, in 2018, more than a quarter of the nation's newborns were Latinx.[2] Yet, even as the Latinx population continues to grow, the education field has a relatively broad understanding of Latinx communities in the United States—frequently treating them as a monolith when designing everything from curriculum to education reform policies. To understand why such an approach to education studies may yield limited insight on Latinx communities, the course draws on research about the broader histories and experiences of Latinx communities in the United States before returning to the topic of K-12 education. EDST 110 Foundations in Education Studies recommended. SO

* **ER&M 409a / AMST 345a / WGSS 408a, Latinx Ethnography** Ana Ramos-Zayas

Consideration of ethnography within the genealogy and intellectual traditions of Latinx Studies. Topics include: questions of knowledge production and epistemological traditions in Latin America and U.S. Latino communities; conceptions of migration, transnationalism, and space; perspectives on "(il)legality" and criminalization; labor, wealth, and class identities; contextual understandings of gender and sexuality; theorizations of affect and intimate lives; and the politics of race and inequality under white liberalism and conservatism in the United States. SO

* **ER&M 412a / PSYC 312a, Native American Mental Health** Christopher Cutter and

Mark Beitel

Issues of health policy, research, and service delivery in Native American communities, with a focus on historical antecedents that shape health outcomes and social policy

for indigenous communities. Urgent problems in health and wellness, with special attention to Native American mental health. The roles of the Indian Health Service, state and local agencies, and tribal health centers; comparison of Native American and European American conceptions of health and illness. so

* **ER&M 420a, Indigenous Thought and Anticolonial Theory** Tarren Andrews

This seminar provides a comprehensive overview of the theoretical landscape of Native American and Indigenous Studies. The readings approach NAIS from a variety of disciplinary perspectives. We explore the major debates, methodologies, and concerns that ground the field, and provide critical context for ethical engagement with Indigenous communities and knowledges. Students learn the disciplinary standards for the evaluation of scholarly sources based on criteria derived from the most outstanding recent scholarship in the field. Students are required to read, write, and think extensively and critically about a variety of issues that are of concern for global Indigenous communities. Mastery of these skills is honed through in-depth discussion and weekly writing assignments. HU

* **ER&M 432a / AMST 430a / ANTH 430a / HIST 123a, Muslims in the United States**
Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America’s story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

* **ER&M 435a / AMST 422a / HIST 151Ja, Writing Tribal Histories** Ned Blackhawk

Historical overview of American Indian tribal communities, particularly since the creation of the United States. Challenges of working with oral histories, government documents, and missionary records. WR, HU

* **ER&M 438a / AFAM 455a / EDST 340a, Anti-Racist Curriculum and Pedagogy**
Daniel HoSang

This seminar explores the pedagogical and conceptual tools, resources and frameworks used to teach about race and racism at the primary and secondary levels, across diverse disciplines and subject areas. Moving beyond the more limited paradigms of racial colorblindness and diversity, the seminar introduces curricular strategies for

centering race and racism in ways that are accessible to students from a broad range of backgrounds, and that work to advance the overall goals of the curriculum. SO

* **ER&M 439a / AMST 439a, Fruits of Empire** Gary Okihiro

Readings, discussions, and research on imperialism and "green gold" and their consequences for the imperial powers and their colonies and neo-colonies. Spatially conceived as a world-system that enmeshes the planet and as earth's latitudes that divide the temperate from the tropical zones, imperialism as discourse and material relations is this seminar's focus together with its implantations—an empire of plants. Vast plantations of sugar, cotton, tea, coffee, bananas, and pineapples occupy land cultivated by native and migrant workers, and their fruits move from the tropical to the temperate zones, impoverishing the periphery while profiting the core. Fruits of Empire, thus, implicates power and the social formation of race, gender, sexuality, class, and nation. HU, SO

* **ER&M 452a / AMST 452a, Mobility, Race, and U.S. Settler Colonialism** Laura Barraclough

This research seminar explores the significance of movement in the making of settler colonial nation-states, as well as contemporary public history projects that interpret those histories of mobility. To do so, it brings together the fields of settler colonial studies, critical Indigenous studies, ethnic studies, public history, and mobility studies. After acquainting ourselves with key debates within each of these fields, we examine case studies from various regions of the settler United States and diverse Indigenous nations. Our goal is to deepen awareness of the complex ways that movements—voluntary and forced, and by settlers, Natives, migrants, and people of color—are reproduced and remembered (or not) in public memory, and how these memories reproduce or destabilize settler colonialism's social and cultural structures. This course is best suited to students who have initial ideas about a potential research topic and are exploring related ideas for their senior essay. HU

* **ER&M 462b / AMST 462b / WGSS 463b, The Study of Privilege in the Americas** Ana Ramos-Zayas

Examination of inequality, not only through experiences of the poor and marginal, but also through institutions, beliefs, social norms, and everyday practices of the privileged. Topics include: critical examination of key concepts like "studying up," "elite," and "privilege," as well as variations in forms of capital; institutional sites of privilege (elite prep schools, Wall Street); living spaces and social networks (gated communities, private clubs); privilege in intersectional contexts (privilege and race, class, and gender); and everyday practices of intimacy and affect that characterize, solidify, and promote privilege. SO

* **ER&M 467a / AFAM 457a / AFST 457a / AMST 470a / FREN 481a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films,

and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the "beur" author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements.

HU

ER&M 470b, Independent Study Staff

For students who wish to pursue a close study in the subjects of ethnicity, race, and/or migration, not otherwise covered by departmental offerings. May be used for research, a special project, or a substantial research paper under faculty supervision. A term paper or its equivalent and regular meetings with the adviser are required. To apply for admission, a student should present a prospectus and a bibliography, signed by the adviser, to the director of undergraduate studies. Enrollment limited.

* **ER&M 472b, Individual Reading and Research for Juniors and Seniors** Staff

For students who wish to cover material not otherwise offered by the program. The course may be used for research or for directed reading. In either case a term paper or its equivalent is required. Students meet regularly with a faculty adviser. To apply for admission, students submit a prospectus signed by the faculty adviser to the director of undergraduate studies.

* **ER&M 491a, The Senior Colloquium: Theoretical and Methodological Issues** Staff

A research seminar intended to move students toward the successful completion of their senior projects, combining discussions of methodological and theoretical issues with discussions of students' fields of research. Not available

* **ER&M 492b, The Senior Essay or Project** Quan Tran

Independent research on a one-term senior essay or project.

Film and Media Studies (FILM)

FILM 150a, Introduction to Film Studies Staff

A survey of film studies concentrating on theory, analysis, and criticism. Students learn the critical and technical vocabulary of the subject and study important films in weekly screenings. Prerequisite for the major. WR, HU o Course cr

FILM 160b / ENGL 196b, Introduction to Media Staff

Introduction to the long history of media. Focus on taken-for-granted infrastructures as the deep background for the digital age. History will be our major resource for understanding the present. We move through strategically selected case studies including technologies for controlling space and time, writing in its many forms, visual and auditory media, and digital media. Media theory will be taught alongside case studies. WR, HU o Course cr

* **FILM 161a / ART 241a, Introductory Film Writing and Directing** Jonathan Andrews

Problems and aesthetics of film studied in practice as well as in theory. In addition to exploring movement, image, montage, point of view, and narrative structure, students photograph and edit their own short videotapes. Emphasis on the writing and production of short dramatic scenes. Priority to majors in Art and in Film & Media Studies. RP

* **FILM 162a or b / ART 142a or b, Introductory Documentary Filmmaking** Staff

The art and craft of documentary filmmaking. Basic technological and creative tools for capturing and editing moving images. The processes of research, planning, interviewing, writing, and gathering of visual elements to tell a compelling story with integrity and responsibility toward the subject. The creation of nonfiction narratives. Issues include creative discipline, ethical questions, space, the recreation of time, and how to represent "the truth." RP

FILM 232b / THST 241b, Classical Hollywood Narrative 1920–1960 Camille Thomasson

Survey of Classical Hollywood films. Topics include history of the studio system; origin and development of genres; the film classics of the Classical Hollywood period, and the producers, screenwriters, directors, and cinematographers who created them. WR, HU
o Course cr

* **FILM 243b / MGRK 218b / WGSS 245b, Family in Greek Literature and Film**
George Syrimis

The structure and multiple appropriations of the family unit, with a focus on the Greek tradition. The influence of aesthetic forms, including folk literature, short stories, novels, and film, and of political ideologies such as nationalism, Marxism, and totalitarianism. Issues related to gender, sibling rivalry, dowries and other economic factors, political allegories, feminism, and sexual and social violence both within and beyond the family. WR, HU TR

FILM 250a / AMST 250a / ER&M 251 / GLBL 249a, Introduction to Critical Data Studies Staff

"Big data" has become a buzzword these days—but what is data? This course introduces the study of data and data technologies and techniques through a critical, anti-colonial lens with profound attention to the power dynamics that constitute what is today called "data." From the seemingly opaque play of algorithms to artificial intelligence and surveillance systems, to digital media and the culture industries, various systems rely on the storage, transaction, classification, and exploitation of datasets. Data is, in short, both a medium that relies on and reconfigures power. This class discusses methods for the study of data technologies and techniques from multiple interdisciplinary humanities and social science perspectives. Through academic scholarship as well as art and data visualizations, students interrogate: How is data constituted through its entanglements with power? What is the relationship between data and social and material inequality? What methods can we use to study the making of data? How can we envision decolonial data technologies and techniques? HU, SO
o Course cr

* **FILM 263a, The Movie Memory Project** Camille Thomasson

This is an experimental course, a first-time interdisciplinary offering, for students of film, history, architecture, psychology, data science, and library science to participate in a class focused on the Movie Memory Project. For six years, my students in *Classical Hollywood Narrative* have collected interviews from their elders about early movie memories. We have 475 interviews from around the world. I'm looking for students who want to delve into the Movie Memory archive to research a topic of their choice. Students should be passionate about research; self-motivated; and willing to work collaboratively to share findings with a community of scholars. WR, HU

* **FILM 268b / AMST 365b / EP&E 399b / ER&M 295b, Platforms and Cultural Production** Julian Posada

Platforms – digital infrastructures that serve as intermediaries between end-users and complementors – have emerged in various cultural and economic settings, from social media (Instagram), and video streaming (YouTube), to digital labor (Uber), and e-commerce (Amazon). This seminar provides a multidisciplinary lens to study platforms as hybrids of firms and multi-sided markets with unique history, governance, and infrastructures. The thematic sessions of this course discuss how platforms have transformed cultural production and connectivity, labor, creativity, and democracy by focusing on comparative cases from the United States and abroad. The seminar provides a space for broader discussions on contemporary capitalism and cultural production around topics such as inequality, surveillance, decentralization, and ethics. Students are encouraged to bring examples and case studies from their personal experiences. Students previously enrolled in AMST 268 may not enroll in this course.

HU, SO

* **FILM 298b / AMST 305b / EP&E 247b / ER&M 330b / SAST 262b, Digital War**

Madiha Tahir

From drones and autonomous robots to algorithmic warfare, virtual war gaming, and data mining, digital war has become a key pressing issue of our times and an emerging field of study. This course provides a critical overview of digital war, understood as the relationship between war and digital technologies. Modern warfare has been shaped by digital technologies, but the latter have also been conditioned through modern conflict: DARPA (the research arm of the US Department of Defense), for instance, has innovated aspects of everything from GPS, to stealth technology, personal computing, and the Internet. Shifting beyond a sole focus on technology and its makers, this class situates the historical antecedents and present of digital war within colonialism and imperialism. We will investigate the entanglements between technology, empire, and war, and examine how digital war – also sometimes understood as virtual or remote war – has both shaped the lives of the targeted and been conditioned by imperial ventures. We will consider visual media, fiction, art, and other works alongside scholarly texts to develop a multidisciplinary perspective on the past, present, and future of digital war.

none HU, SO

* **FILM 304b / EALL 281b, Japanese Cinema and Its Others** Aaron Gerow

Critical inquiry into the myth of a homogeneous Japan through analysis of how Japanese film and media historically represents “others” of different races, ethnicities, nationalities, genders, and sexualities, including women, black residents, ethnic Koreans, Okinawans, Ainu, undocumented immigrants, LGBTQ minorities, the disabled, youth, and monstrous others like ghosts. HU

FILM 305a / LITR 361a, Animation: Disney and Beyond Staff

Survey of the history of animation, considering both its aesthetics and its social potentials. The focus is on Disney and its many alternatives, with examples from around the world, from various traditions, and from different periods. HU

o Course cr

* **FILM 318a / GMAN 355a / HUMS 344a, German Film from 1945 to the Present**

Fatima Naqvi

Trauma, gender, media, transnationalism, terrorism, migration, precarity, neoliberalism, and environmental ethics are the issues we study in films from the

German-speaking world. We begin in the immediate post-war period: How does the Second World War and its aftermath inflect these films? How does gender play an increasingly important role in the fiction films under discussion? What new collective identities do films articulate in the course of the politicized period from the late 1960s into the late 1970s, when home-grown terrorism contests the category of the West German nation? How do the predominant concerns shift with the passage of time and with the changing media formats? What is the role of genre in representing transnational problems like migration after 2000? How do economic issues come to the fore in the precarious economic conditions shown? When does violence seem like an answer to political, economic, and social pressures and the legacies of colonialism? Particular attention is paid to film aesthetics. Films include those by Julian Radlmaier, Hubert Sauper, Sudabeh Mortezaei, Fatih Akin, Wolfgang Staudte, Alexander Kluge, Werner Herzog, Rainer Werner Fassbinder, Werner Schroeter, Harun Farocki, Michael Haneke, Christian Petzold, Jessica Hausner, Mara Mattuschka, Ulrich Seidl, Nikolaus Geyrhalt, among others. Visiting directors Julian Radlmaier and Hubert Sauper will be integrated into the course. This class will have an optional German section (50 minutes a week) for students interested in counting this class for the Advanced Language Certificate. A minimum of three students is required for the section to run.
HU

* **FILM 320b / HSAR 490b, Close Analysis of Film** Oksana Chefranova

Close study of a range of major films from a variety of periods and places. Apart from developing tools for the close analysis of film, we consider such topics as genre and mode; the role of sound; cinema as a structure of gazes; remakes and adaptations; approaches to realism; narration and resistance to narration; film in relation to other moving image media; and the relationship of close analysis to historical contextualization and interpretation more generally. Prerequisite: FILM 150. WR, HU

* **FILM 321a / HUMS 435a / LAST 359a / LITR 379a, Radical Cinemas in the Global Sixties** Moira Fradinger and Lorenz Hegel

“1968” has become a cipher for a moment of global turmoil, social transformation and cultural revolution. This class explores the “long global sixties” through cinema produced across continents. At the height of the Cold War between two blocks in the “East” and the “West,” the “Third World” emerged as a radical political project alternative to a world order shaped by centuries of colonialism, imperialism, slavery, and capitalist exploitation. Liberation, emancipation, independence, anticolonialism, decolonization, and revolution became key words in the global political discourse. Leaders from Africa, Asia, and Latin America created a new international platform, the Non-Aligned Movement (NAM) that challenged the Cold War bi-polarity. Radical filmmakers who belong in this period experimented with strategies of storytelling and of capturing reality, calling into question rigid distinctions between “documentary” and “fiction” and “art and politics.” The goal was not to “show” reality, but to change it. We study a world-wide range of examples that involve filmmakers’ collaborations across The Americas, Western Europe, North Africa, South and South-East Asia. Taught in English; films are subtitled but knowledge of other languages may be useful. HU

* **FILM 333b / LITR 351b, Early Film Theory and Modernity** Francesco Casetti

For a long time, early film theories have been overlooked and underestimated. Their recent rediscovery has, however, highlighted their crucial role in framing film as a “modern” invention. The main point of interest in early film theories is based on

their capacity of highlight and focus some of the characteristic of modern life: speed, economy, contingency, excitation, etc. By prioritizing the filmic experience, they focalized attention on the spectator. But the idea of a “modern” art, as well as the research for a “modern” language, were also an important issue. On the background of this interest in modernity, early film theories were not uniform. Ideological differences and national identities played a major role in defining the perspective of theoretical research. In this respect, it is useful to compare the debate in the USA and in Europe and to acknowledge the very different traditions which they represented. The seminar accordingly takes into account theories in France (Delluc, Epstein), Germany (Arnheim, Kracauer), Middle-Europe (Báalazs, Lukács, Tille), Italy (Papini, Thovez), Soviet Union (Eisenstein, Vertov, Pudovkin) and USA (Lindsay, Freeburg, Münsterberg). Every week there is a screening with films representative of the time. HU

* **FILM 341a / MGRK 238a / WGSS 233a, Weird Greek Wave Cinema** George Syrimis
The course examines the cinematic production of Greece in the last fifteen years or so and looks critically at the popular term “weird Greek wave” applied to it. Noted for their absurd tropes, bizarre narratives, and quirky characters, the films question and disturb traditional gender and social roles, as well as international viewers’ expectations of national stereotypes of classical luminosity#the proverbial “Greek light”#Dionysian exuberance, or touristic leisure. Instead, these works frustrate not only a wholistic reading of Greece as a unified and coherent social construct, but also the physical or aesthetic pleasure of its landscape and its ‘quaint’ people with their insistence on grotesque, violent, or otherwise disturbing images or themes (incest, sexual otherness and violence, aggression, corporeality, and xenophobia). The course also pays particular attention on the economic and political climate of the Greek financial crisis during which these films are produced and consumed and to which they partake. None HU

* **FILM 350a, Screenwriting** Staff

A beginning course in screenplay writing. Foundations of the craft introduced through the reading of professional scripts and the analysis of classic films. A series of classroom exercises culminates in intensive scene work. Prerequisite: FILM 150. Not open to first-year students.

FILM 355b / ART 341b, Intermediate Film Writing and Directing Jonathan Andrews
In the first half of the term, students write three-scene short films and learn the tools and techniques of staging, lighting, and capturing and editing the dramatic scene. In the second half of the term, students work collaboratively to produce their films. Focus on using the tools of cinema to tell meaningful dramatic stories. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 241. RP

FILM 356b / ART 342b, Intermediate Documentary Filmmaking Michel Auder
Students explore the storytelling potential of the film medium by making documentaries an art form. The class concentrates on finding and capturing intriguing, complex scenarios in the world and then adapting them to the film form. Questions of truth, objectivity, style, and the filmmaker's ethics are considered by using examples of students' work. Exercises in storytelling principles and screenings of a vast array of films mostly made by independent filmmakers from now to the beginning of the last century. Limited enrollment. Priority to majors in Art and in Film & Media Studies. Prerequisites: ART 141 or 142. HU RP

* **FILM 369a / HUMS 186a / RSEE 244a / RUSS 222a, War Games** Marijeta Bozovic
Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players “perform” war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU TR

* **FILM 399a / EALL 237a / EAST 404a, Nuclear Disasters and Trauma in Japanese Cinema and Beyond** Staff

This course examines the ways nuclear disasters are depicted in contemporary Japanese cinema. More specifically, we look at atomic bombings in Hiroshima and Nagasaki (1945), and the Fukushima Daiichi Nuclear Disaster (2011), and how the dormant trauma towards nuclear power has influenced Japanese cinema/media. As the artists portraying disasters often face the limits of representation, their works raise the following questions: how can cinema depict disasters that are indescribable in nature? How might cinema cause or resist tendencies towards post-catastrophic nationalism? In what ways can cinema address disaster that other forms of media cannot? What filmic techniques can be used to dramatize disastrous moments? Can cinema “foresee” unfolding or upcoming disasters? While considering these questions, this course also introduces the methodologies to write/discuss about film as an art form by examining different cinematic elements such as visual, sound, narrative, performance, and touch. HU

FILM 403b / HUMS 426b, Scared to Death: Fear of and in Media Francesco Casetti
Fear is a dominant political, cultural, social, and economic force today. However, its importance is often overlooked, especially in film and media studies. While recent work has looked at our positive affective relationships with media, including fandom and cinephilia, the fear of media has been largely ignored. Yet, media also elicit, amplify, quell, and otherwise respond to cultural anxieties. They convey frightening content; they provide biased information; they produce addiction; they allegedly harm our physical and mental health; they expose our private selves to a public gaze; they seem

to expropriate our identities; and so on. Current debates on “fake news,” the increasing role of “conspiracy theories,” and the polarization of sources of information are all elements that further increase the idea of media as a terrifying reality. This lecture course considers how media and fear intersect, asking both how technology mediates fear and how fear shapes our engagement with media. To this end, we have broken the course into two main units. In the first, “Mediating Fears,” we analyze how fear has historically circulated and how media have conveyed and transformed this emotion. In the second, “Fearing Media,” we look at media as objects of fear, due their nature as technological, modern, ephemeral, unfamiliar, attractive, and pervasive objects. In order to better explore fear as a concept and as an object of experience, every week we present a theoretical framework (first meeting) and a case study (second meeting). Readings include academic papers, literary works, op-eds, and articles in both print and digital publications. HU

* **FILM 417a, Experimental Multimodal Videomaking and Exhibition** Staff

In this course we make ten prompt driven one-minute video projects specifically designed to increase fluidity of thinking-through-videomaking. Some of the projects happen in class. Most are out-of-class assignments for which I give specific problems to solve or parameters to work within. Some assignments we design as a class. When we are not shooting or editing in class we exercise our critical skills by screening projects and discussing them. We take experimental approaches to the process of making these 10 videos as we glance toward the standard cinematic categories of drama, documentary, experimental film, and animation as we glide past. These categories are familiar, but not always productive, divisions among modes of production since none of these categories defines clear boundaries between practices. Instead, this class leads us closer to understanding the complex array of contingencies impinging on all filmmaking processes. We take an ecologically based, transdisciplinary attitude rather than a categorized genre-based categorization. We continually ask, how do the various aspects and approaches to a filmmaking environment interact and modify each other? Through weekly prompt based video-making exercises, we navigate through a topography of filmmaking and exhibition practices. HU

FILM 423b / AMST 364b / EVST 366b, Documentary and the Environment Charles Musser

Survey of documentaries about environmental issues, with a focus on *Darwin's Nightmare* (2004), *An Inconvenient Truth* (2006), *Food, Inc.* (2009), *GasLand* (2010), and related films. Brief historical overview, from early films such as *The River* (1937) to the proliferation of environmental film festivals. HU RP

* **FILM 425b / GMAN 275b / LITR 358b, East German Literature and Film** Katie Trumpener

The German Democratic Republic (1949-1989) was a political and aesthetic experiment that failed, buffeted by external pressures, and eroded by internal contradictions. For forty years, in fact, its most ambitious literary texts and films (some suppressed, others widely popular) explored such contradictions, often in a vigilant, Brechtian spirit of irony and dialectics. This course examines key texts both as aesthetic experiments and as critiques of the country's emerging cultural institutions and state censorship, recurrent political debates and pressing social issues. Texts by Brecht, Uwe Johnson, Heiner Müller, Christa Wolf, Johannes Bobrowski, Franz Fühmann, Wolf Biermann, Thomas Brasch, Christoph Hein; films by Slatan Dudow, Kurt Maetzig, Konrad Wolf,

Heiner Carow, Frank Beyer, Jürgen Böttcher, Volker Koepp. Knowledge of German desirable but not crucial; all texts available in English. WR, HU

* **FILM 432a / GMAN 432 / HUMS 348a / LITR 432a, World War II: Homefront Literature and Film** Katie Trumpener

Taking a pan-European perspective, this course examines quotidian, civilian experiences of war, during a conflict of unusual scope and duration. Considering key works of wartime and postwar fiction and film alongside verbal and visual diaries, memoirs, documentaries, and video testimonies, we will explore the kinds of literary and filmic reflection war occasioned, how civilians experienced the relationship between history and everyday life (both during and after the war), women's and children's experience of war, and the ways that home front, occupation and Holocaust memories shaped postwar avant-garde aesthetics. HU

* **FILM 445b / ENGL 363b / LITR 450b, Film and Fiction in Interaction** Dudley Andrew

Beyond adaptations of complex fiction (Henry James, James Joyce) literature may underlie “original” film masterpieces (*Rules of the Game*, *Voyage to Italy*). What about the reverse? Famous novelists moonlighted in the film world (Scott Fitzgerald, Graham Greene). Others developed styles in contact with cinema (Marguerite Duras, Eileen Chang, Kazuo Ishiguro). Today are these art forms evolving in parallel and in parity under new cultural conditions? HU

* **FILM 447a / AMST 449a / HIST 413a, The Historical Documentary** Charles Musser

This course looks at the historical documentary as a method for carrying out historical work in the public humanities. It investigates the evolving discourse and resonances within such topics as the Vietnam War, the Holocaust and African American history. It is concerned with their relationship of documentary to traditional scholarly written histories as well as the history of the genre and what is often called the “archival turn.” WR, HU

* **FILM 455a and FILM 456b / AMST 463a and AMST 464b / EVST 463a and EVST 464b / THST 457a and THST 458b, Documentary Film Workshop** Charles Musser

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

* **FILM 457b / ITAL 303b / LITR 359b, Italian Film from Postwar to Postmodern** Millicent Marcus

A study of important Italian films from World War II to the present. Consideration of works that typify major directors and trends. Topics include neorealism, self-reflexivity and metacinema, fascism and war, and postmodernism. Films by Fellini, Antonioni, Rossellini, De Sica, Visconti, Pasolini, Bertolucci, Wertmuller, Tornatore, and Moretti. Films in Italian with English subtitles. WR, HU

* **FILM 460a, Sound/Image Practice** Staff

We start from the assumption that sound is actually the ‘secret-sauce’ in the film/ videomaking process. Often overlooked—or at least neglected, sound is a potent tool to advance the logic of a film or video and even more, to enhance the emotional patina and immersive engagement of a film or video. Sound becomes an accessible portal to

the perhaps overlooked not-quite-conscious realm of the film/video experience. While we certainly read some theory/history of sound, this is primarily a class of making. The first 7 weeks include videomaking exercises designed to highlight specific challenges in sound for picture. The core concern is with conceptual development in the myriad ways that sound and picture work together. There is no genre or mode preference in this class. Fiction, non-fiction, experimental, animation, game, tiktok, anything is okay. For the second half of the semester, each student (or collaborative small group—with permission) design, shoot, edit, and mix a short (3–5min) video of their own design—a video that demonstrates attention and developing sophistication in the use of sound with picture, as well as in how to design visual shots and temporal structures (editing) with sound in mind. The visual and auditory aspects of any video are entangled in such a way that contribute (when blended with the audience’s imagination and memory) to the formation of the Sound/Image in the audience member’s minds.

*** FILM 470a, Women Filmmakers** Staff

The seminar surveys the extraordinary contributions that female filmmakers have made to cinema and to film theory, ranging from the beginning of cinema to the most recent examples, from narrative cinema to experimental practice. We examine films by Lois Weber, Alice Guy Blaché, Germaine Dulac, Leontine Sagan, Leni Riefenstahl, Dorothy Arzner, Ida Lupino, Maya Deren, Agnès Varda, V#ra Chytilová, Barbara Hammer, Julie Dash, Claire Denis, Lucrecia Martel, Kelly Reichardt, Sofia Coppola, Alice Rohrwacher, Céline Sciamma, Ana Lily Amirpour, and Mati Diop. We read texts written by women writer, filmmakers, and critics such as Germaine Dulac, Maya Deren, Barbara Hammer, Julie Dash, Colette, Virginia Woolf, Laura Mulvey, and Manohla Dargis. The cinema is approached from a variety of historical and theoretical discourses such as production history, feminism, world cinema, and post-colonial studies among others. There will be an option for a practical component that might include a curatorial project, an interview with a filmmaker, or an audio-visual essay (in consultation with the instructor). WR, HU

*** FILM 471a or b, Independent Directed Study** Staff

For students who wish to explore an aspect of film and media studies not covered by existing courses. The course may be used for research or directed readings and should include one lengthy essay or several short ones as well as regular meetings with the adviser. To apply, students should present a prospectus, a bibliography for the work proposed, and a letter of support from the director of the director of undergraduate studies. Term credit for independent research or reading may be granted and applied to any of the requisite areas upon application and approval by the director of undergraduate studies.

*** FILM 483a and FILM 484b / ART 442a and ART 443b, Advanced Film Writing and Directing** Jonathan Andrews

A yearlong workshop designed primarily for majors in Art and in Film & Media Studies making senior projects. Each student writes and directs a short fiction film. The first term focuses on the screenplay, production schedule, storyboards, casting, budget, and locations. In the second term students rehearse, shoot, edit, and screen the film. Priority to majors in Art and in Film & Media Studies. Prerequisite: ART 341.

*** FILM 487a and FILM 488b, Advanced Screenwriting** Staff

Students write a feature-length screenplay. Emphasis on multiple drafts and revision. Admission in the fall term based on acceptance of a complete step-sheet outline for the

story to be written during the coming year. Primarily for Film & Media Studies majors working on senior projects. Prerequisite: FILM 395 or permission of instructor.

*** FILM 491a and FILM 492b, The Senior Essay** Staff

An independent writing and research project. A prospectus signed by the student's adviser must be submitted to the director of undergraduate studies by the end of the second week of the term in which the essay project is to commence. A rough draft must be submitted to the adviser and the director of undergraduate studies approximately one month before the final draft is due. Essays are normally thirty-five pages long (one term) or fifty pages (two terms).

*** FILM 493a and FILM 494b, The Senior Project** Staff

For students making a film or video, either fiction or nonfiction, as their senior project. Senior projects require the approval of the Film and Media Studies Committee and are based on proposals submitted at the end of the junior year. An interim project review takes place at the end of the fall term, and permission to complete the senior project can be withdrawn if satisfactory progress has not been made. For guidelines, consult the director of undergraduate studies. Does not count toward the fourteen courses required for the major when taken in conjunction with FILM 455, 456 or FILM 483, 484.

Finnish (FNSH)

FNSH 130a, Intermediate Finnish I Staff

The structure of the Finnish Studies Program at Columbia University ensures that students receive a solid grounding in both the language and the culture of Finland. The Program promotes the development of language ability through students' participation in communicative activities and discussions. This course provides students a thorough and consistently structured revision of intermediate linguistic competence in Finnish including listening, speaking, reading, and writing. Students learn to talk fluently about a wide range of topics from everyday life, speak about recent past, read and understand newspaper articles, and use appropriate grammatical structures. Prerequisite: FNSH 120 or equivalent. L3 RP

FNSH 140b, Intermediate Finnish II Staff

The structure of the Finnish Studies Program at Columbia University ensures that students receive a solid grounding in both the language and the culture of Finland. The Program promotes the development of language ability through students' participation in communicative activities and discussions. This course is designed to further develop language skills at the intermediate level and provides a continuation of Finnish L3 along with study of the culture and cultural practices of the Finnish-speaking society. Prerequisite: FNSH 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP

French (FREN)

*** FREN 012a / LITR 020a, World Literature After Empire** Jill Jarvis

An introduction to contemporary French fiction in a global perspective that will transform the way you think about the relationship between literature and politics. Together we read prizewinning novels by writers of the former French Empire – in

Africa, the Middle East, Southeast Asia, and the Caribbean – alongside key manifestos and theoretical essays that define or defy the notion of world literature. Keeping our focus on questions of race, gender, imperialism, and translation, we ask: has literature gone global? What does that mean? What can we learn from writers whose texts cross and confound linguistic and national borders? Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. No previous knowledge of French is required. WR, HU

* **FREN 110a, Elementary and Intermediate French I** Matuku Ngame
Intensive training and practice in all the language skills, with an initial emphasis on listening and speaking. Emphasis on communicative proficiency, self-expression, and cultural insights. Extensive use of audio and video material. Conducted entirely in French. To be followed by FREN 120. For students with no previous experience of French. Daily classroom attendance is required. L1 RP 1½ Course cr

* **FREN 120b, Elementary and Intermediate French II** Staff
Continuation of FREN 110. Open only to students who took FREN 110 (L1) at Yale. Conducted entirely in French. Only after FREN 110. To be followed by FREN 130. L2 RP 1½ Course cr

* **FREN 121a, Intermediate French** Candace Skorupa
Designed for initiated beginners, this course develops all the language skills with an emphasis on listening and speaking. Activities include role playing, self-expression, and discussion of cultural and literary texts. Emphasis on grammar review and acquisition of vocabulary. Frequent audio and video exercises. Conducted entirely in French. Daily classroom attendance is required. Placement according to placement test score. Online preregistration required; see french.yale.edu for details. L2 1½ Course cr

* **FREN 125a, Intensive Elementary French** Constance Sherak
An accelerated course that covers in one term the material taught in FREN 110 and 120. Practice in all language skills, with emphasis on communicative proficiency. Admits to FREN 145. Conducted entirely in French. For students of superior linguistic ability. No preregistration required. L1, L2 RP 2 Course cr

* **FREN 130a or b, Intermediate and Advanced French I** Staff
The first half of a two-term sequence designed to develop students' proficiency in the four language skill areas. Prepares students for further work in literary, language, and cultural studies, as well as for nonacademic use of French. Oral communication skills, writing practice, vocabulary expansion, and a comprehensive review of fundamental grammatical structures are integrated with the study of short stories, novels, and films. Admits to FREN 140. Conducted entirely in French. After FREN 120, 121, or a satisfactory placement test score. L3 RP 1½ Course cr

* **FREN 140a or b, Intermediate and Advanced French II** Staff
The second half of a two-term sequence designed to develop students' proficiency in the four language skill areas. Introduction of more complex grammatical structures. Films and other authentic media accompany literary readings from throughout the francophone world, culminating with the reading of a longer novel and in-class presentation of student research projects. Admits to FREN 150. Conducted entirely in French. After FREN 130 or a satisfactory placement test score. L4 RP 1½ Course cr

* **FREN 145b, Intensive Intermediate and Advanced French** Candace Skorupa

An accelerated course that covers in one term the material taught in FREN 130 and 140. Emphasis on speaking, writing, and the conversion of grammatical knowledge into reading competence. Admits to FREN 150. For students of superior linguistic ability. Conducted entirely in French. After FREN 120, 121, or 125. No preregistration required. L3, L4 RP 2 Course cr

* **FREN 150a or b, Advanced Language Practice** Francoise Schneider

An advanced language course intended to improve students' comprehension of spoken and written French as well as their speaking and writing skills. Modern fiction and nonfiction texts familiarize students with idiomatic French. Special attention to grammar review and vocabulary acquisition. Conducted entirely in French. After FREN 140, 145, or a satisfactory placement test score. Online preregistration required; see <http://french.yale.edu/academics/placement-and-registration> for details. L5

* **FREN 160a or b, Advanced Conversation Through Culture, Film, and Media** Staff

Intensive oral practice designed to further skills in listening comprehension, speaking, and reading through the use of videos, films, fiction, and articles. Emphasis on contemporary French and francophone cultures. Conducted entirely in French. Prerequisites: FREN 150, 151, or a satisfactory placement test score, or with permission of the course director. May be taken concurrently with or after FREN 170. L5

* **FREN 170a or b, Introduction to Literatures in French** Staff

Introduction to close reading and analysis of literary texts written in French. Works by authors such as Marie de France, Molière, Balzac, Hugo, Baudelaire, Duras, Proust, and Genet. Please note the syllabus is different for each section. Each syllabus can be found on the syllabus tab of the section course resources in Yale Course Search. May not be taken after FREN 171. L5, HU

* **FREN 183a, Medical French: Conversation and Culture** Leo Tertrain

An advanced language course emphasizing verbal communication and culture. Designed to introduce students to historical and contemporary specificities of various Francophone medical environments, and to foster the acquisition of vocabulary related to these environments. Discussions, papers, and oral presentations, with a focus on ethical, economic, legal, political, semiological, and artistic questions. Topics such as public health policies, epidemics, medicine in Francophone Africa, humanitarian NGOs, assisted reproductive technologies, end-of-life care, and organ donation are explored through films, documentaries, graphic novels, a literary text, an autobiographical narrative, and articles. Conducted entirely in French. Prerequisite: FREN 150 or a satisfactory placement test score, or with permission of instructor. L5

* **FREN 184b, Business French: Communication and Culture** Leo Tertrain

An advanced language course emphasizing verbal communication and culture. Designed to introduce students to historical and contemporary specificities of various Francophone economic environments, and to foster the acquisition of vocabulary related to these environments. Discussions, papers, and oral presentations, with a focus on ethical, political, legal, semiological, and artistic questions. Topics such as taxation, privatization, the eurozone, the energy industry, labor unions, labor law, banking, the sharing economy, and human resources are explored through films, documentaries, a graphic novel, a literary text, a biographical narrative, articles, and excerpts from essays. Conducted entirely in French. Prerequisite: FREN 150 or a satisfactory placement test

score, or with permission of instructor. May be taken concurrently with or after FREN 160 and FREN 170. L5

*** FREN 191a, Literary Translation: History and Theory in Practice** Nichole Gleisner

An introduction to the practice and theory of literary translation, conducted in workshop format. Stress on close reading, with emphasis initially on grammatical structures and vocabulary, subsequently on stylistics and aesthetics. Translation as a means to understand and communicate cultural difference in the case of French, African, Caribbean, and Québécois authors. Texts by Benjamin, Beckett, Borges, Steiner, and others. Readings in French and in English. After FREN 150 or with permission of instructor. HU

*** FREN 192b, Intermediate Literary Translation** Nichole Gleisner

A continuation of FREN 191 for students who wish to work on a longer project and to deepen their reading in translation theory.

Prerequisite: FREN 191. HU

FREN 216a / ENGL 154a / HUMS 134a / LITR 194a, The Multicultural Middle Ages
Staff

Introduction to medieval English literature and culture in its European and Mediterranean context, before it became monolingual, canonical, or author-bound. Genres include travel writing, epic, dream visions, mysticism, the lyric, and autobiography, from the Crusades to the Hundred Years War, from the troubadours to Dante, from the *Chanson de Roland* to Chaucer. Formerly ENGL 189. WR, HU
o Course cr

*** FREN 220b, Nineteenth-Century French Poetry** Thomas Connolly

A study of nineteenth-century French poetry in verse, from the years following the French Revolution to the cusp of the First World War. Poets studied include Marceline Desbordes-Valmore, Alphonse de Lamartine, Victor Hugo, Gérard de Nerval, Alfred de Musset, Théophile Gautier, Leconte de Lisle, Charles Baudelaire, Théodore de Banville, Stéphane Mallarmé, Paul Verlaine, Judith Gautier, Arthur Rimbaud, Marie Krysinska, Jules Laforgue, and Guillaume Apollinaire. Secondary readings by Joris-Karl Huysmans, Marcel Proust, Émile Zola, Francis Vielé-Griffin, Friedrich Nietzsche, André Gide, Albert Thibaudet and others. Topics discussed include the role of poetry in Romanticism, Symbolism, Naturalism, and Realism, its presence in politics and the revolutions of 1830 and 1848, the war with Prussia in 1870, the Commune of 1871, as well as specifically poetic events such as the launch of *Le Parnasse contemporain* and the birth of "vers libre." Readings and discussions in French. Ability to read, write, and speak in French is required. HU

*** FREN 233a, Novels of the Twenty-First Century** Morgane Cadieuc

Exploration of twenty-first-century novels by Bernheim, Bouraoui, Darrieussecq, Garréta, NDiaye, Modiano, Pireyre, and Volodine. Emphasis on new literary movements and genres as well as on literary life (media, prizes, publishing houses, literary quarrels, digitalization). Topics of the novels include: description of urban and rural settings; memory, war, and migrations; queer and postcolonial subjectivities; ecology; global France and world-literature. Students will be invited to select and read a novel of their choice from the Fall 2023 list of new releases. Conducted in French. HU

* **FREN 307b / LITR 302b, France by Rail: Trains in French Literature, Film, and History** Morgane Cadieu

Exploration of the aesthetics of trains in French and Francophone literature and culture, from the end of the nineteenth-century and the first locomotives, to the automatically driven subway in twenty-first century Paris. Focus on the role of trains in industrialization, colonization, deportation, decolonization, and immigration. Corpus includes novels, poems, plays, films, paintings, graphic novels, as well as theoretical excerpts on urban spaces and public transportation. Activities include: building a train at the CEID and visiting the Beinecke collections and the Art Gallery. May not be taken after FREN 306. WR, HU

* **FREN 321a, Corneille and Racine: Passions and Politics on the French Classical Stage** Pierre Saint-Amand

This course consists of close readings of the major political tragedies of the classical period, from the famous dueling playwrights, Pierre Corneille and Jean Racine. We consider how the language of passions intersects with the language of politics, the dialectics of desire and violence, of Hero and State. Study of the recurring major passions: love, jealousy, hate, and how they are dealt with, sometimes repaired. We extend our study to the religious plays by the respective authors. Ability to read, write, and speak French. L5, HU

* **FREN 330a / HUMS 366a, The World of Victor Hugo's "Les Misérables"** Maurice Samuels

Considered one of the greatest novels of all time, Victor Hugo's *Les Misérables* (1862) offers more than a thrilling story, unforgettable characters, and powerful writing. It offers a window into history. Working from a new translation, this seminar studies Hugo's epic masterpiece in all its unabridged glory, but also uses it as a lens to explore the world of nineteenth-century France—including issues such as the criminal justice system, religion, poverty, social welfare, war, prostitution, industrialization, and revolution. Students gain the tools to work both as close readers and as cultural historians in order to illuminate the ways in which Hugo's text intersects with its context. Attention is also paid to famous stage and screen adaptations of the novel: what do they get right and what do they get wrong? Taught in English, no knowledge of French is required. HU o Course cr

* **FREN 340a / GMAN 232a / HUMS 429a / JDST 286a / LITR 232a, Paul Celan** Thomas Connolly

An undergraduate seminar in English exploring the life and work of Paul Celan (1920–1970), survivor of the Shoah, and one of the foremost European poets of the second half of the twentieth century. We will read from his early poems in both Romanian and German, and his published collections including *Der Sand aus den Urnen*, *Mohn und Gedächtnis*, *Von Schelle zu Schelle*, *Sprachgitter*, *Die Niemandrose*, *Atemwende*, *Fadensonnen*, *Lichtzwang*, and *Schneepart*. We will also read from his rare pieces in prose and his correspondence with family, friends, and other intellectuals and poets including Bachmann, Sachs, Heidegger, Char, du Bouchet, Michaux, Ungaretti. A special focus on his poetic translations from French, but also Russian, English, American, Italian, Romanian, Portuguese, and Hebrew. Critical readings draw from Szondi, Adorno, Derrida, Agamben, and others. Readings in English translation or in the original languages, as the student desires. Discussions in English. None. WR, HU

* **FREN 355b / LITR 234b, Camus and the Postwar Era** Alice Kaplan

The literary and political career of French-Algerian writer Albert Camus (1913–60). His major novels and essays read both from a stylistic point of view and in the context of World War II, the Algerian War, and debates over terrorism, the death penalty, and humanitarianism. HU TR

* **FREN 368a, Reasoning with Voltaire** Pierre Saint-Amand

An investigation of the French Enlightenment through its principal representative philosopher, Voltaire. An examination of Voltaire's preoccupations, including philosophy, religion, tolerance, freedom, and human rights. Readings include Voltaire's *contes*, major plays, entries from the *Dictionnaire philosophique*, treatises, and pamphlets. Conducted entirely in French. L5

* **FREN 378a / AFAM 368a, Zombies, Witches, Goddesses: Disorderly Women in Francophone Fiction** Kaiama Glover

This course explores configurations of the feminine as a force of disorder in prose fiction works of the 20th-century French- and Creole-speaking Americas. How do certain kinds of women characters reflect the troubling realities of the communities in which they are embedded? What alternative modes of being might these women's non- or even anticomunal practices of freedom suggest? How are matters of the erotic, the spiritual, and the maternal implicated in Caribbean women's relationships to their communities? Through slow and careful readings of literary fiction and critical theory, we examine the 'troubling' heroines presented in prose fiction works by francophone Caribbean authors of both genders, considering the thematic intersections and common formal strategies that emerge in their writing. We consider in particular the symbolic value of the 'zombie,' the 'witch,' the 'goddess,' and other provocative characters as so many reflections on—and of—social phenomena that mark the region and its history.

WR, HU

* **FREN 385b, Reading Rabelais's Gargantua** Dominique Brancher

How should the modern man be educated? Which virtues should a Christian prince possess in times of war? Can you be serious and funny at the same time? Gargantua, the life-story of a giant born from his mother's ear, published two years after Pantagruel in 1534, has surprising answers to these questions and more. It is with this work of excess, in form as much as in content, in which giants consume material and spiritual goods with equal enthusiasm, and in which received ideas are subject to harsh critical and comic scrutiny, that Rabelais invents the modern novel. Students undertake a close reading of the text in its modern French translation, alongside relevant secondary sources. All readings, discussions, and assignments in French. HU

* **FREN 403b / HUMS 409b / LITR 224b, Proust Interpretations: Reading**

Remembrance of Things Past Pierre Saint-Amand and R Howard Bloch

A close reading (in English) of Marcel Proust's masterpiece, *Remembrance of Things Past*, with emphasis upon major themes: time and memory, desire and jealousy, social life and artistic experience, sexual identity and personal authenticity, class and nation. Portions from *Swann's Way*, *Within a Budding Grove*, *Cities of the Plain*, *Time Regained* considered from biographical, psychological/psychoanalytic, gender, sociological, historical, and philosophical perspectives. WR, HU

* **FREN 404a, Inventories and Inventions: "Cabinets de curiosité" and the Writing of Singularity** Dominique Brancher

A seminar on "cabinets de curiosités" and the stories told about the objects they contain, whether real or invented. We pay close attention to catalogues, as modes of exhibition in their own right, as products of a collection, as well as vectors for the dissemination of a given collection of objects. We see how the catalogue is a textual crossroads, able to absorb, integrate, and sometimes correct developments in scholarly or travel writing. The catalogue is often also the pre-text to parodic or fictional forms. For example, some might claim to present imaginary collections. Others present themselves as real catalogs while exhibiting the signs of fabrication. Catalogues include "Le Cabinet de M. de Scudéry" (1646), "Musaeum clausum" or "Bibliotheca abscondita" by Thomas Browne (1684), and the fictitious catalogue included in Francis Bacon's "La Nouvelle Atlantide" (1627). This course includes readings in relevant critical and theoretical literature, as well as visits to museums and libraries in New Haven. Readings and discussions in French. Ability to read, write, and speak French.

HU

* **FREN 416a / ER&M 335a / WGSS 416a, Social Mobility and Migration** Morgane Cadieu

The seminar examines the representation of upward mobility, social demotion, and interclass encounters in contemporary French literature and cinema, with an emphasis on the interaction between social class and literary style. Topics include emancipation and determinism; inequality, precarity, and class struggle; social mobility and migration; the intersectionality of class, race, gender, and sexuality; labor and the workplace; homecomings; mixed couples; and adoption. Works by Nobel Prize winner Annie Ernaux and her peers (Éribon, Gay, Harchi, Linhart, Louis, NDiaye, Taïa). Films by Cantet, Chou, and Diop. Theoretical excerpts by Berlant, Bourdieu, and Rancière. Students will have the option to put the French corpus in dialogue with the literature of other countries. Conducted in French. HU

* **FREN 423a / HUMS 403a / LITR 410a, Interpretations: Simone Weil** Greg Ellermann

Intensive study of the life and work of Simone Weil, one of the twentieth century's most important thinkers. We read the iconic works that shaped Weil's posthumous reputation as "the patron saint of all outsiders," including the mystical aphorisms *Gravity and Grace* and the utopian program for a new Europe *The Need for Roots*. But we also examine in detail the lesser-known writings Weil published in her lifetime—writings that powerfully intervene in some of the most pressing debates of her day. Reading Weil alongside contemporaries such as Trotsky, Heidegger, Arendt, Levinas, and Césaire, we see how her thought engages key philosophical, ethical, and aesthetic problems of the twentieth century: the relation between dictatorship and democracy; empire and the critique of colonialism; the ethics of attention and affliction; modern science, technology, and the human point of view; the responsibility of the writer in times of war; beauty and the possibility of transcendence; the practice of philosophy as a way of life. HU

* **FREN 425b / AFST 425b / MMES 360b, North African French Poetry** Thomas Connolly

Introduction to North African poetry composed in French during the twentieth and twenty-first centuries. Works explored within the broader context of metropolitan

French, Arabic, and Berber cultures; juxtaposition with other modes of expression including oral poetry, painting, dance, music, the Internet, and film. The literary, aesthetic, political, religious, and philosophical significance of poetic discourse. HU

* **FREN 470a and FREN 471b, Special Tutorial for Juniors and Seniors** Morgane Cadieu

Special projects set up by the student in an area of individual interest with the help of a faculty adviser and the director of undergraduate studies. Intended to enable the student to cover material not offered by the department. The project must terminate with at least a term paper or its equivalent and must have the approval of the director of undergraduate studies. Only one term may be offered toward the major, but two terms may be offered toward the bachelor's degree. For additional information, consult the director of undergraduate studies.

* **FREN 481a / AFAM 457a / AFST 457a / AMST 470a / ER&M 467a, Racial Republic: African Diasporic Literature and Culture in Postcolonial France** Fadila Habchi

This is an interdisciplinary seminar on French cultural history from the 1930s to the present. We focus on issues concerning race and gender in the context of colonialism, postcolonialism, and migration. The course investigates how the silencing of colonial history has been made possible culturally and ideologically, and how this silencing has in turn been central to the reorganizing of French culture and society from the period of decolonization to the present. We ask how racial regimes and spaces have been constructed in French colonial discourses and how these constructions have evolved in postcolonial France. We examine postcolonial African diasporic literary writings, films, and other cultural productions that have explored the complex relations between race, colonialism, historical silences, republican universalism, and color-blindness. Topics include the 1931 Colonial Exposition, Black Paris, decolonization, universalism, the Trente Glorieuses, the Paris massacre of 1961, anti-racist movements, the "beur" author, memory, the 2005 riots, and contemporary afro-feminist and decolonial movements.

HU

* **FREN 491a or b, The Senior Essay** Morgane Cadieu

A one-term research project completed under the direction of a ladder faculty member in the Department of French and resulting in a substantial paper in French or English. For additional information, consult the director of undergraduate studies.

FREN 492a or b, The Senior Essay – Translation Track Morgane Cadieu

A one-term research project completed under the direction of a ladder faculty member in the Department of French and resulting in a substantial translation (roughly 30 pages) from French to English, with a critical introduction of a length to be determined by the student in consultation with the advising ladder faculty member. Materials submitted for the translation track cannot be the same as the materials submitted for the translation courses. For additional information, consult the director of undergraduate studies.

* **FREN 493a and FREN 494b / FREN 495a and FREN 496b, The Senior Essay in the Intensive Major** Morgane Cadieu

A yearlong research project completed under the direction of a ladder faculty member in the Department of French and resulting in a paper of considerable length, in French or English. For additional information, consult the director of undergraduate studies.

FREN 495a and FREN 496b / FREN 493a and FREN 494b, The Senior Essay in the Intensive Major – Translation Track Morgane Cadieu

First term of a yearlong research project completed under the direction of a ladder faculty member in the Department of French and resulting in a translation of considerable length (roughly 60 pages), from French to English, with a critical introduction of a length to be determined by the student in consultation with the advising ladder faculty member. Materials submitted for the translation track cannot be the same as the materials submitted for the translation courses. For additional information, consult the director of undergraduate studies.

German Studies (GMAN)

*** GMAN 110a, Elementary German I** Staff

A beginning content- and task-based course that focuses on the acquisition of spoken and written communication skills, as well as on the development of cultural awareness and of foundations in grammar and vocabulary. Topics such as school, family life, and housing. Course materials include a variety of authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. To be followed by GMAN 120. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>.

L1 1½ Course cr

GMAN 120a, Elementary German II Staff

Continuation of GMAN 110. A content- and task-based course that focuses on the acquisition of communicative competence in speaking and writing and on the development of strong cultural awareness. Topics such as multiculturalism, food, childhood, and travel; units on Switzerland and Austria. Course materials include a variety of authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. To be followed by GMAN 130. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L2 1½ Course cr

GMAN 130a, Intermediate German I Staff

Builds on and expands knowledge acquired in GMAN 120. A content- and task-based course that helps students improve their oral and written linguistic skills and their cultural awareness through a variety of materials related to German literature, culture, history, and politics. Course materials include authentic readings, a feature film, and shorter video clips. Tutors are available for extra help. After GMAN 120 or according to placement examination. Followed by GMAN 140. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L3 1½ Course cr

GMAN 140a, Intermediate German II Staff

Builds on and expands knowledge acquired in GMAN 130. A content- and task-based course that helps students improve their oral and written linguistic skills and their cultural awareness through a variety of materials related to German literature, culture, history, and politics. Course materials include authentic readings, a feature film, and

shorter video clips. Tutors are available for extra help. After GMAN 130 or according to placement examination. Normally followed by GMAN 150 or, with permission of the director of undergraduate studies, by GMAN 171. Enrollment limited to 14 per section. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L4 1½ Course cr

* **GMAN 152a, Advanced German, Contemporary Germany** Lieselotte Sippel
An advanced language and culture course focusing on contemporary Germany. Analysis and discussion of current events in Germany and Europe through the lens of German media, including newspapers, books, TV, film radio, and modern electronic media formats. Focus on oral and written production to achieve advanced linguistic skills. After GMAN 140 or 145. For entering students with a score of 5 on the German Advanced Placement test, or according to results of the placement examination. Students must preregister through Preference Selection during the online preregistration period. Details and a link to Preference Selection are provided on the German department Web site at <http://german.yale.edu>. L5, HU

* **GMAN 160a, German Culture, History, and Politics in Text and Film** Theresa Schenker
Advanced language course about the history, politics, and culture of East Germany from 1945 to reunification. Analysis of life in the German Democratic Republic with literary and nonliterary texts and films. Includes oral and written assignments, with an emphasis on vocabulary building and increased cultural awareness. Taught in German. After GMAN 140, 145, or 150, or with permission of instructor. L5, HU

* **GMAN 173a, Introduction to German Lyric Poetry** Staff
The German lyric tradition, including classic works by Goethe, Schiller, Hölderlin, Eichendorff, Heine, Mörike, Droste-Hülshoff, Rilke, George, Brecht, Trakl, Celan, Bachmann, and Jandl. Attention to the German *Lied* (art song). Development of advanced reading, writing, speaking, and translation skills. Prerequisite: GMAN 150 or equivalent. L5, HU

* **GMAN 200a / HUMS 130a / LITR 130a, How to Read** Rudiger Campe and Hannan Hever
Introduction to techniques, strategies, and practices of reading through study of lyric poems, narrative texts, plays and performances, films, new and old, from a range of times and places. Emphasis on practical strategies of discerning and making meaning, as well as theories of literature, and contextualizing particular readings. Topics include form and genre, literary voice and the book as a material object, evaluating translations, and how literary strategies can be extended to read film, mass media, and popular culture. Junior seminar; preference given to juniors and majors. HU

GMAN 208b / HIST 254b, Germany from Unification to Refugee Crisis Jennifer Allen
The history of Germany from its unification in 1871 through the present. Topics include German nationalism and national unification; the culture and politics of the Weimar Republic; National Socialism and the Holocaust; the division of Germany and the Cold War; the Student Movement and New Social Movements; reunification; and Germany's place in contemporary Europe. HU 0 Course cr

* **GMAN 232a / FREN 340a / HUMS 429a / JDST 286a / LITR 232a, Paul Celan**
Thomas Connolly

An undergraduate seminar in English exploring the life and work of Paul Celan (1920–1970), survivor of the Shoah, and one of the foremost European poets of the second half of the twentieth century. We will read from his early poems in both Romanian and German, and his published collections including *Der Sand aus den Urnen*, *Mohn und Gedächtnis*, *Von Schelle zu Schelle*, *Sprachgitter*, *Die Niemandsrose*, *Atemwende*, *Fadensonnen*, *Lichtzwang*, and *Schneepart*. We will also read from his rare pieces in prose and his correspondence with family, friends, and other intellectuals and poets including Bachmann, Sachs, Heidegger, Char, du Bouchet, Michaux, Ungaretti. A special focus on his poetic translations from French, but also Russian, English, American, Italian, Romanian, Portuguese, and Hebrew. Critical readings draw from Szondi, Adorno, Derrida, Agamben, and others. Readings in English translation or in the original languages, as the student desires. Discussions in English. None. WR, HU

* **GMAN 275b / FILM 425b / LITR 358b, East German Literature and Film** Katie Trumpener

The German Democratic Republic (1949–1989) was a political and aesthetic experiment that failed, buffeted by external pressures, and eroded by internal contradictions. For forty years, in fact, its most ambitious literary texts and films (some suppressed, others widely popular) explored such contradictions, often in a vigilant, Brechtian spirit of irony and dialectics. This course examines key texts both as aesthetic experiments and as critiques of the country's emerging cultural institutions and state censorship, recurrent political debates and pressing social issues. Texts by Brecht, Uwe Johnson, Heiner Müller, Christa Wolf, Johannes Bobrowski, Franz Fühmann, Wolf Biermann, Thomas Brasch, Christoph Hein; films by Slatan Dudow, Kurt Maetzig, Konrad Wolf, Heiner Carow, Frank Beyer, Jürgen Böttcher, Volker Koepp. Knowledge of German desirable but not crucial; all texts available in English. WR, HU TR

* **GMAN 279a, Romanticism: Poetics, Politics, and Economy** Staff

The epoch of Romanticism, situated between the French Revolution and the Restoration, is as long (ca. 1790–ca. 1830) as it is complex. Early romantics such as Schlegel, Hardenberg or (the young) Tieck seem to respond to completely different problems than for example authors like E.T.A. Hoffmann, Clemens Brentano, Eichendorff or Bettine von Arnim. Their texts provide an example of the various ways in which literature around 1800 deals with the modern experience of contingency, with social and epistemological differentiation, and political shock, and the poetic, aesthetic and genre-theoretical complexity that emerges from this process. The seminar explores this by examining key concepts of Romanticism – especially of early romantic aesthetics – such as transcendental poetry, irony, exponentiation, arabesque, the fragmentary and the (self-)reflexive, as well as considerations of imagination, perception, and sign theory, and by linking them to romantic positions in the field of philosophy, political and social theory and economics. We discuss programmatic writings, theoretical notes, and literary texts in different genres. HU

* **GMAN 288a / HUMS 480a / LITR 482a / PHIL 469a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's

analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.

HU

* **GMAN 310a / LING 191a, "Sprachkrise" – Philosophies & Language Crises** Sophie Schweiger

The crisis of language predates the invention of ChatGPT (who may or may not have helped write this syllabus). This course delves into the concept of language crises and its long history from a philosophical and literary perspective, examining how crises of language are represented in literature and how they reflect broader philosophical questions about language, identity, and power. We explore different philosophical approaches to language, such as the history of language and philology (Herder, Humboldt, Nietzsche), structuralism and post-structuralism (Saussure), analytical and pragmatic philosophies (Wittgenstein), phenomenology and deconstruction (Heidegger), and analyze how these theories shape our understanding of language while simultaneously evoking its crisis. The course also examines how such language crises are represented and produced in literature and the arts; how authors and artists approach the complexities of language loss, and how crises help birth alternative systems of signification. Through close readings of literary texts by Hofmannsthal, Musil, Bachmann, et. al., we analyze the symbolic and metaphorical significance of language crises, as well as the ethical and political implications of language loss for (cultural) identity. Experimental use of language such as DaDa artwork, performance cultures, and "Sprachspiel" poetry by the "Wiener Gruppe," as well as contemporary KI/AI literature, further complement the theoretical readings. By exploring language crises through the lens of philosophy and literature, we gain a deeper understanding of the role of language – and its many crises – in shaping our understanding of ourselves and our communities. HU

* **GMAN 355a / FILM 318a / HUMS 344a, German Film from 1945 to the Present** Fatima Naqvi

Trauma, gender, media, transnationalism, terrorism, migration, precarity, neoliberalism, and environmental ethics are the issues we study in films from the German-speaking world. We begin in the immediate post-war period: How does the Second World War and its aftermath inflect these films? How does gender play an increasingly important role in the fiction films under discussion? What new collective identities do films articulate in the course of the politicized period from the late 1960s into the late 1970s, when home-grown terrorism contests the category of the West German nation? How do the predominant concerns shift with the passage of time and with the changing media formats? What is the role of genre in representing transnational problems like migration after 2000? How do economic issues come to the fore in the precarious economic conditions shown? When does violence seem like an answer to political, economic, and social pressures and the legacies of colonialism? Particular attention is paid to film aesthetics. Films include those by Julian Radlmaier, Hubert Sauper, Sudabeh Mortezai, Fatih Akin, Wolfgang Staudte, Alexander Kluge,

Werner Herzog, Rainer Werner Fassbinder, Werner Schroeter, Harun Farocki, Michael Haneke, Christian Petzold, Jessica Hausner, Mara Mattuschka, Ulrich Seidl, Nikolaus Geyrhalt, among others. Visiting directors Julian Radlmaier and Hubert Sauper will be integrated into the course. This class will have an optional German section (50 minutes a week) for students interested in counting this class for the Advanced Language Certificate. A minimum of three students is required for the section to run.
HU

*** GMAN 366a / HUMS 419a / LITR 393a / PHIL 346a, The Short Spring of German Theory** Kirk Wetters

Reconsideration of the intellectual microclimate of German academia 1945–1968. A German prelude to the internationalization effected by French theory, often in dialogue with German sources. Following Philipp Felsch's *The Summer of Theory* (English 2022): Theory as hybrid and successor to philosophy and sociology. Theory as the genre of the philosophy of history and grand narratives (e.g. "secularization"). Theory as the basis of academic interdisciplinarity and cultural-political practice. The canonization and aging of theoretical classics. Critical reflection on academia now and then. Legacies of the inter-War period and the Nazi past: M. Weber, Heidegger, Husserl, Benjamin, Kracauer, Adorno, Jaspers. New voices of the 1950s and 1960s: Arendt, Blumenberg, Gadamer, Habermas, Jauss, Koselleck, Szondi, Taubes. German reading and some prior familiarity with European intellectual history is helpful but not essential. HU

GMAN 381a / PHIL 204a, Kant's Critique of Pure Reason Eric Watkins

An examination of the metaphysical and epistemological doctrines of Kant's *Critique of Pure Reason*. Prerequisite: PHIL 126 or DRST 004. HU

*** GMAN 478a, Directed Readings or Individual Research in Germanic Languages and Literatures** Staff

Individual study under faculty supervision. Applicants must submit a prospectus and bibliography approved by the faculty adviser to the director of undergraduate studies. The student meets with the adviser at least one hour each week and takes a final examination or writes a term paper. No credit granted without prior approval of the director of undergraduate studies.

*** GMAN 492a, The Senior Essay Tutorial** Staff

Preparation of an original essay under the direction of a faculty adviser.

Global Affairs (GLBL)

GLBL 101b, Gateway to Global Affairs Pinelopi Goldberg

The course covers key topics and themes related to democracy, economic growth and prosperity, and inequality. SO o Course cr

GLBL 121a, Applied Quantitative Analysis Staff

This course is an introduction to statistics and their application in public policy and global affairs research. Throughout the term we cover issues related to data collection (including surveys, sampling, and weighted data), data description (graphical and numerical techniques for summarizing data), probability and probability distributions, confidence intervals, hypothesis testing, measures of association, and regression analysis. QR o Course cr

GLBL 122b, Applied Quantitative Analysis II Staff

This course introduces students to multiple regression analysis and other tools of causal inference and program evaluation. The course focuses on applying these tools to real data on various topics in global affairs and public policy. Applications are drawn from a wide range of areas including education, social welfare, unemployment, security, health, immigration, the environment, and economic development. We develop the core analytical tools of single and multi-variable regression and discuss fixed effects, difference-in-difference, natural experiment, instrumental variables, regression discontinuity, event study, and matching approaches. Students are trained to thoughtfully produce their own empirical research and to critically consume empirical research done by others. Prerequisite: GLBL 121 or equivalent. QR o Course cr

GLBL 159a / ECON 159a, Game Theory Staff

An introduction to game theory and strategic thinking. Ideas such as dominance, backward induction, Nash equilibrium, evolutionary stability, commitment, credibility, asymmetric information, adverse selection, and signaling are applied to games played in class and to examples drawn from economics, politics, the movies, and elsewhere. After introductory microeconomics. No prior knowledge of game theory assumed. QR, SO o Course cr

GLBL 201a / AMST 228a / HIST 128a, Origins of U.S. Global Power Staff

This course examines the causes and the consequences of American global power in the “long 20th century,” peering back briefly into the 19th century as well as forward into the present one. The focus is on foreign relations, which includes but is not limited to foreign policy; indeed, America’s global role was rooted as much in its economic and cultural power as it was in diplomacy and military strength. We study events like wars, crises, treaties, and summits – but also trade shows and movie openings. Our principal subjects include plenty of State Department officials, but also missionaries, business people, and journalists. We pay close attention also to conceptions of American power; how did observers in and beyond the United States understand the nature, origins, and operations of American power? HU o Course cr

GLBL 204b / CLCV 200b / HIST 204b, Global Leadership, 600 BCE–600 CE Staff

This course provides students with an accessible and engaging introduction to both the classical world and the problems of political organization and leadership through time and across societies. Students learn to think comparatively between individuals, societies, and systems and to analyze different ideals of leadership. This means considering not only traditional masculine and military conceptions of rule but also the leadership roles and styles of women, slaves, and rebels. We hope to bring into view, in other words, the intersectional challenges to power faced by non-traditional leaders in a world dominated by gender, class, and cultural prejudices, and to show how non-traditional leaders confronted and overcame these. Students draw upon this experience to access the premodern world as an alternative but related historical reality which can productively inform their engagement with the present. HU o Course cr

GLBL 207a / HIST 104a, The World Circa 2000 Staff

The World Circa 2000 is a global history of the present since ~ 1960. The course moves thematically to consider topics including, decolonization and nation building in the global south, crises of nationalism and recurrent authoritarianism, the politics of aid, humanitarianism and neo-liberalism, technophilia, environmentalism and networked societies, climate change and ‘free trade,’ new religious fundamentalisms and imagined

solidarities, celebrity, individuality, and consumerism in China, the United States, and beyond. HU o Course cr

* **GLBL 210a / EVST 210a / SOCY 210a, The State and its Environment** Jonathan Wyrzten and Benjamin Kaplow

This course engages two core entwined questions: How does the state impact its surroundings and environment? And, how do these impact the state? The goal of this course is to give students a grounding in an interdisciplinary range of relevant social science literatures that help them think through those questions and how they relate to each other. The course addresses how states interact with and impact their ecological environment, but centers broader questions of how states relate to space, resources, populations, and to the socially constructed patterns of their physical, cultural, and economic environments. In doing so, the course aims to bridge discussions of state politics with political questions of the environment. In broadening the topic from only ecology, the class aims to help students develop a portable lens with which to examine state formation and its past and present impact in a variety of contexts: economic planning, systems of land management, military rule, taxation, and population control.

SO

* **GLBL 215a / LAST 386a / MGRK 237a / PLSC 375a / SOCY 389a, Populism** Paris Aslanidis

Investigation of the populist phenomenon in party systems and the social movement arena. Conceptual, historical, and methodological analyses are supported by comparative assessments of various empirical instances in the US and around the world, from populist politicians such as Donald Trump and Bernie Sanders, to populist social movements such as the Tea Party and Occupy Wall Street. WR, SO

* **GLBL 216a / PLSC 173a, Democracy Promotion and Its Critics** Sarah Bush
A seminar on the history, justifications, and various forms of democracy promotion – and their controversies. Topics include foreign aid, election observers, gender, international organizations, post-conflict development, revolutions, and authoritarian backlash.

GLBL 219b / ECON 375b, Monetary Policy William English

Introduction to modern macroeconomic models and how to use the models to examine some of the key issues that have faced monetary policymakers during and after the global financial crisis of 2008–2009. Prerequisites: Intermediate level macroeconomics (ECON 122 or 126) and introductory econometrics. WR, SO o Course cr

GLBL 223b / HLTH 230b, Global Health: Challenges and Responses Staff

Overview of the determinants of health and how health status is measured, with emphasis on low- and middle-income countries. The burden of disease, including who is most affected by different diseases and risk factors; cost-effective measures for addressing the problem. The health of the poor, equity and inequality, and the relationship between health and development. SO o Course cr

* **GLBL 224a / HIST 224Ja, Empires and Imperialism Since 1840** Arne Westad

Empire has been a main form of state structure throughout much of human history. Many of the key challenges the world faces today have their origins in imperial structures and policies, from wars and terror to racism and environmental destruction. This seminar looks at the transformation empires and imperialisms went through from the middle part of the nineteenth century and up to today. Our discussions center

on how and why imperialisms moved from strategies of territorial occupation and raw exploitation, the “smash and grab” version of empire, and on to policies of racial hierarchies, social control and reform, and colonial concepts of civilizational progress, many of which are still with us today. The seminar also covers anti-colonial resistance, revolutionary organizations and ideas, and processes of decolonization. WR, HU

*** GLBL 225b, Approaches to International Development** Staff

This course focuses on understanding poverty and economic development. The emphasis is on applying the tools of economics and empirical analysis for thinking critically about the nature, causes and potential policy solutions to poverty. Topics include the measurement of poverty; economic growth; institutions and colonialism; social capital; inequality; migration and forced displacement; rural finance and labor markets; and gender. Enrollment limited to sophomores, juniors, and seniors. Prerequisite: GLBL 121. QR, SO o Course cr

*** GLBL 230b, Managing the Clean Energy Transition: Contemporary Energy and Climate Change Policy Making** Paul Simons

This seminar will explore the principal challenges facing both advanced and developing economies in managing their respective transitions to a clean energy future and the goals of the Paris climate change agreement, while simultaneously meeting energy security needs and keeping economies competitive. By the end of the course, students should be fully conversant with key features of the global energy and climate change architecture; principal challenges facing policymakers in meeting climate change goals; and opportunities and hurdles for the deployment of key clean energy technologies in coming decades.

GLBL 234b / ECON 184b, International Economics Samuel Kortum

Introduction to conceptual tools useful for understanding the strategic choices made by countries, firms, and unions in a globalized world. After two terms of introductory economics. SO

*** GLBL 237a / ECON 185a, Global Economy** Sigridur Benediktssdottir and Aleh Tsyvinski

A global view of the world economy and the salient issues in the short and the long run. Economics of crises, fiscal policy, debt, inequality, global imbalances, climate change. The course is based on reading, debating, and applying cutting edge macroeconomic research. SO

*** GLBL 244a / PLSC 445a, The Politics of Fascism** Lauren Young

The subject of this course is fascism: its rise in Europe in the 1930s and deployment during the Second World War as a road map to understanding the resurgence of nationalism and populism in today’s political landscape, both in Europe and the United States. The course begins with an examination of the historic debates around fascism, nationalism, populism, and democracy. It then moves geographically through the 1930s and 1940s in Europe, looking specifically at Weimar Germany, Vichy France, the rise of fascism in England in the 1930s, and how fascist ideology was reflected in Italy’s colonial ambitions during the Abyssinian War. The course examines fascism and the implementation of racial theory and the example of anti-Semitism as an ideological and political tool. It also looks at the emergence of fascism in visual culture. The second part of the seminar turns to fascist ideology and the realities of today’s political world.

We examine the political considerations of building a democratic state, question the

compromise between security and the preservation of civil liberties and look at the resurgence of populism and nationalism in Europe and the US. The course concludes by examining the role of globalization in contemporary political discourse. SO

GLBL 249a / AMST 250a / ER&M 251 / FILM 250a, Introduction to Critical Data Studies Staff

“Big data” has become a buzzword these days – but what is data? This course introduces the study of data and data technologies and techniques through a critical, anti-colonial lens with profound attention to the power dynamics that constitute what is today called “data.” From the seemingly opaque play of algorithms to artificial intelligence and surveillance systems, to digital media and the culture industries, various systems rely on the storage, transaction, classification, and exploitation of datasets. Data is, in short, both a medium that relies on and reconfigures power. This class discusses methods for the study of data technologies and techniques from multiple interdisciplinary humanities and social science perspectives. Through academic scholarship as well as art and data visualizations, students interrogate: How is data constituted through its entanglements with power? What is the relationship between data and social and material inequality? What methods can we use to study the making of data? How can we envision decolonial data technologies and techniques? HU, SO o Course cr

* **GLBL 253b / ARCH 341b / LAST 318b / URBN 341b, Globalization Space** Staff

Infrastructure space as a primary medium of change in global polity. Networks of trade, energy, communication, transportation, spatial products, finance, management, and labor, as well as new strains of political opportunity that reside within their spatial disposition. Case studies include free zones and automated ports around the world, satellite urbanism in South Asia, high-speed rail in Japan and the Middle East, agripoles in southern Spain, fiber optic submarine cable in East Africa, spatial products of tourism in North Korea, and management platforms of the International Organization for Standardization. HU o Course cr

GLBL 275a, Approaches to International Security Staff

Introduction to major approaches and central topics in the field of international security, with primary focus on the principal man-made threats to human security: the use of violence among and within states, both by state and non-state actors. Priority to Global Affairs majors. Non-majors require permission of the instructor. SO o Course cr

* **GLBL 282b / EVST 255b / F&ES 255b / PLSC 215b, Environmental Law and Politics**
John Wargo

We explore relations among environmental quality, health, and law. We consider global-scale *avoidable* challenges such as: environmentally related human illness, climate instability, water depletion and contamination, food and agriculture, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We evaluate the effectiveness of laws and regulations intended to reduce or prevent environmental and health damages. Additional laws considered include rights of secrecy, property, speech, worker protection, and freedom from discrimination. Comparisons among the US and EU legal standards and precautionary policies will also be examined. Ethical concerns of justice, equity, and transparency are prominent themes. SO

GLBL 287a / PLSC 387a / SOCY 230a, Capitalism and Crisis Staff

This course provides an introduction to the study of comparative capitalism. We examine how institutions organizing labor markets, finance and the welfare state differ systematically across advanced industrialized countries and the consequence of these differences for a variety of economic and policy outcomes. These include economic growth, unemployment, levels of inequality and so on. Can we meaningfully talk about a German or Swedish model and if so, what are the main institutional arrangements that differ across these economies? How do institutions in these countries differ from more liberal capitalist economies, such as the United States? In the second part of the course, we examine the responses of different countries to a variety of economic shocks. These include the stagflation crisis of the 1970's, the slowdown in economic growth, deindustrialization, the rise in unemployment and inequality and the migration crisis. We examine how existing political and economic institutions have shaped the policy trade-offs encountered by different countries and we explain the different political responses taken in response to these crises. During the period between November 14 and November 24, enrollment will be limited to majors. After November 24, registration will be opened to all Yale College students. Please register your interest via the Yale Course Search website. SO o Course cr

*** GLBL 289a or b / HIST 245Ja or b / PLSC 431a or b, War and Peace in Northern Ireland** Bonnie Weir

Examination of theoretical and empirical literature in response to questions about the insurgency and uneasy peace in Northern Ireland following the peace agreement of 1998 which formally ended the three-decade long civil conflict known widely as The Troubles and was often lauded as the most successful of its kind in modern history. Consideration of how both the conflict and the peace have been messier and arguably more divisive than most outside observers realize. SO

*** GLBL 307a / ECON 467a, Economic Evolution of the Latin American and Caribbean Countries** Ernesto Zedillo

Economic evolution and prospects of the Latin American and Caribbean (LAC) countries. Topics include the period from independence to the 1930s; import substitution and industrialization to the early 1980s; the debt crisis and the "lost decade"; reform and disappointment in the late 1980s and the 1990s; exploration of selected episodes in particular countries; and speculations about the future. Prerequisites: intermediate microeconomics and macroeconomics. SO

GLBL 308a / ECON 424a, Central Banking William English

Introduction to the different roles and responsibilities of modern central banks, including the operation of payments systems, monetary policy, supervision and regulation, and financial stability. Discussion of different ways to structure central banks to best manage their responsibilities. Prerequisites: Intermediate Microeconomics, Intermediate Macroeconomics, and Introductory Econometrics. SO o Course cr

GLBL 309b / EAST 310b / PLSC 357b, The Rise of China Daniel Mattingly

Analysis of Chinese domestic and foreign politics, with a focus on the country's rise as a major political and economic power. Topics include China's recent history, government, ruling party, technology, trade, military, diplomacy, and foreign policy. SO o Course cr

* **GLBL 310a / ECON 407a, International Finance** Ana Fieler

A study of the implications of increasing integration of the world economy, through international trade, multinational production, and financial markets. Topics include foreign exchange markets, capital flows, trade and current account imbalances, coordination of monetary and fiscal policy in a global economy, financial crises and their links to sovereign debt crises and currency devaluations. Prerequisite: intermediate macroeconomics or equivalent. SO o Course cr

* **GLBL 313a, The United Nations on the Ground** Jessica Faieta

This course explores the role and functioning of the United Nations at the country level from the perspective of the three mandates or pillars of the UN Charter. 1) Peace and Security, and in particular the Peace-keeping operations: how do they work? Who decides to send a UN mission to a country? what do they do in each country? 2) Development: How does the UN helps countries achieve the Sustainable Development Goals? Which are the different UN agencies, funds, and programs and how do they work in reducing poverty, advancing gender equality, preventing violence, fighting climate change and protecting the environment or ensuring food security? and 3) Human rights: How does the UN respond to humanitarian crises, such as natural disasters or refugee crisis? What is its role in protecting vulnerable populations such as children, ethnic minorities or indigenous peoples? How does the Organization monitor human rights compliance or helps avoid human rights violations? SO

* **GLBL 315a, Economics of the EU** Marnix Amand

The functioning of the economy of the European Union, both from a theoretical perspective (trade theory, monetary union, etc.) and from a practical perspective. Particular emphasis on the recent crises of the last ten years with effort to put these crises in a larger geostrategic context. Prerequisites: ECON 110 or 115 and ECON 111 or 116. SO

* **GLBL 316b, Co-Existing with Complexity: Emerging Environmental Governance**
Jessica Seddon

Accelerating environmental change and its impacts on society are testing social structures at all scales. Higher temperatures, longer droughts, and changing storm intensity are reallocating risks and stressing public and private insurance, disaster management agencies, and planning and business strategy. Changes in biodiversity, land use, air, water, and soil pollution are creating new business, health, and security risks. Food security and the geography of production is shifting, with economic and geopolitical as well as health consequences. This seminar focuses on some of the ways that governments, businesses, and civil society groups are adapting—and failing to adapt—to new challenges. It discusses and analyzes the political economy and potential effectiveness of recent proposals for new forms of transboundary environmental cooperation, climate and development finance, public-private risk allocation, environmental monitoring, and corporate and fiduciary responsibility among other responses to the visibly changing environment. It also asks students to generate and defend new institutional strategies for implementing high-level commitments and principles for environmental governance. SO

* **GLBL 317b / PLSC 365b, China's Sovereign Lending** James Sundquist

This is a course about when governments borrow from foreign lenders and the political causes and consequences of the decision to borrow. To enable us to focus on politics, some training in economics is required. We begin by reviewing the internal

determinants of China's external lending behavior. Next, we study how international finance collides with domestic politics creating both opportunities and challenges for borrowers. The second half of the course surveys topics of contemporary importance: how effective is Chinese economic statecraft? Can China expect to be repaid in full? Will the renminbi become a global reserve currency? Prerequisite: Three Economics courses, including either ECON 122 or ECON 122. SO

* **GLBL 319a, Human Rights and the Climate Crisis** Sigridur Benediktsdottir
As climate change takes a mounting toll on the lives and livelihoods of people around the globe, reducing greenhouse gas emissions and promoting "climate resilience" have become, arguably, the most pressing challenges of our era. This seminar examines the climate crisis through the lens of human rights. How is climate change impacting people's rights? And how can advocacy for people's rights contribute to efforts to address climate change? We explore the scientific, political, and legal bases for attributing responsibility for climate impacts to governments and corporations, examine how international human rights norms obligate them to address these impacts, and assess the strategies, tactics, and tools employed by rights advocates to compel them to meet these obligations. More broadly, we consider how the exigencies of the climate crisis could ultimately undermine—or actually strengthen—the international human rights regime. Students are encouraged to question and critique positions taken by a range of climate activists, while simultaneously equipping themselves with the knowledge and analytical tools necessary to advocate effectively for ambitious, rights-respecting climate action. SO

* **GLBL 321b, Human Rights Advocacy: Critical Assessment and Practical Engagement in Global Social Justice** Staff

This seminar critically analyzes the history and current practices of the human rights movement. We consider the grave challenges facing human rights advocates globally and possible responses. SO

* **GLBL 328b, Reopening & Reimagining Africa** Harry Thomas

It is time to "reopen and reimagine Africa." This course requires students to research and redesign policies that are intended to help African nations emerge economically stronger and with a population that is better educated and healthier by 2050. We examine, analyze, and support and/or criticize the long-term policies of African nations. Students are required to engage up-and-coming African scholars, businesspersons, educators, and policymakers to ensure that the recommendations are not conceived in a vacuum. We examine the obstacles and challenges of Great Power Competition among the U.S., the PRC, Russia, and the EU on Africa and design alternative policies. SO

* **GLBL 330b / ECON 465b / EP&E 224b, Debating Globalization** Ernesto Zedillo
Facets of contemporary economic globalization, including trade, investment, and migration. Challenges and threats of globalization: inclusion and inequality, emerging global players, global governance, climate change, and nuclear weapons proliferation. Prerequisite: background in international economics and data analysis. Preference to seniors majoring in Economics or EP&E. SO RP

* **GLBL 335a, Causes, Consequences, and Policy Implications of Global Economic Inequality** Sigridur Benediktsdottir

By working through a number of influential contemporary texts, we investigate the causes and consequences of economic inequality. Some of the mechanisms include

financial markets, credit and savings, health, education, globalization, discrimination, social networks, and political processes. We explore both the theoretical and empirical literature, as well as possible policy interventions. We conclude with country-level case studies. Prerequisite: introductory microeconomics. SO

*** GLBL 341b / PLSC 450b, The Geopolitics of Democracy** Lauren Young

The threats to liberal democracy are being widely debated, from the US and Europe to developing nations. In order for democracy to continue to thrive as the cornerstone of Western governance, it must adapt and be relevant to citizens of the 21st century. This course examines our appreciation of what constitutes democracy today and how to apply those understandings to the challenges of the 21st century. Our discussions look at the characteristics of democratic leaders and debate whether America, the bulwark of liberal democracy in the 20th century, is still an exporter of democracy and how that matters in today's world. We then look at how to protect and adapt democratic institutions such as free elections, civil society, dissent, and the free press in the face of a rising wave of populism and nationalism. The course examines how refugee crises from conflict regions and immigration impact democracies and debate the accelerating paradigm shifts of income inequality and technology on democratic institutions. We conclude the course with a discussion of the forms of democratic governance that are meaningful in the 21st century and the practicalities of designing or reforming democratic institutions to confront current challenges. SO

*** GLBL 342b / HIST 482Jb / PLSC 321b, Studies in Grand Strategy I** Arne Westad, Jing Tsu, and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. The spring term focuses on key moments in history that illustrate strategic thinking in action. During the summer, students undertake research projects or internships analyzing strategic problems or aspects of strategy. The following fall, students put their ideas into action by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. HU, SO

*** GLBL 344a / HIST 483Ja / PLSC 161a, Studies in Grand Strategy II** Arne Westad, Jing Tsu, and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. During the fall term, students put into action the ideas studied in the spring term by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Prerequisite: PLSC 321. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. SO

* **GLBL 382a / EP&E 403a / PLSC 383a, Designing and Reforming Democracy** Ian Shapiro and David Froomkin

What is the best electoral system? Should countries try to limit the number of political parties? Should chief executives be independently elected? Should legislatures have powerful upper chambers? Should courts have the power to strike down democratically enacted laws? These and related questions are taken up in this course. Throughout the semester, we engage in an ongoing dialogue with the *Federalist Papers*, contrasting the Madisonian constitutional vision with subsequent insights from democratic theory and empirical political science across the democratic world. Where existing practices deviate from what would be best, we also attend to the costs of these sub-optimal systems and types of reforms that would improve them. Prerequisite: At least one prior course in American politics or comparative politics. SO

* **GLBL 388a, The Politics of American Foreign Policy** Sigridur Benediktsdottir and Howard Dean

This seminar addresses the domestic political considerations that have affected American foreign policy in the post-World War II world. The goals of the course are to (1) give historical context to the formation of major existing global governance structures, (2) give students an opportunity to research how major foreign policy decisions in the past were influenced by contemporary political pressure, and (3) assess what effect those pressures have had on today's global issues. Case studies include, but are not limited to: Truman and the Marshall Plan; Johnson and the Vietnam War; Nixon and the opening of China; Reagan and the collapse of the Soviet Union, George HW Bush and Iraq, Clinton and the Balkans, and Obama and the development of a multipolar foreign policy for a multipolar world. SO

GLBL 392a, Intelligence, Espionage, and American Foreign Policy Staff

The discipline, theory, and practice of intelligence; the relationship of intelligence to American foreign policy and national security decision-making. Study of the tools available to analyze international affairs and to communicate that analysis to senior policymakers. Case studies of intelligence successes and failures from World War II to the present. O Course cr

* **GLBL 394a / ANTH 409a / ER&M 394a / EVST 422a / F&ES 422a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove

Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities. WR, SO

* **GLBL 398b / HIST 426Jb, Yale and the World: Global Power, Local History** David Engerman

This course uses moments in the history of Yale University to shed light on the forms, functions, and trajectory of U.S. global power from the late 19th century through the early 21st century. Key episodes include missionary work in East Asia, scientific expeditions in South America, mobilization for war and Cold War, and the internationalization of the student body. Students investigate these episodes by reading scholarly work as well as archival sources, and through discussions with Yale faculty and staff. WR, HU

* **GLBL 425a, Atrocity Prevention** David Simon

Can atrocities be prevented? This course considers the ways in which episodes of genocide, crimes against humanity, and war crimes might be preventable. It looks at ways in which models of atrocities yield corresponding models of prevention, and then what policies those models, in turn, recommend. We consider a broad number of cases of prevention, devoting attention to the different phases and agents of the prevention efforts in question. We analyze the extent to which prevention efforts at different levels have been successful while being mindful of the costs that accompanied them. We aim to draw conclusions about what strategies key actors can deploy to reduce the incidence of mass atrocities throughout the world. so

* **GLBL 430a, Turning Points in Peace-building** Bisa Williams

This seminar examines the challenges that must be addressed when the fighting has stopped. Once a peace agreement is signed, real deal-making begins. Former rebels negotiate with their military commanders about relinquishing arms and working for a living; communities look for “peace dividends,” refugees weigh options to return home; Governments try to assert authority despite how weakened they have become or new to the role they are; compatriots who opposed the peace settlement relentlessly try to undermine it. The international community, which often leads warring parties to the table, takes on a new role also, informing and sometimes deforming outcomes. Building a durable peace requires a sensitivity to the changing priorities of the signatories and international community, as well as the constituencies for whom the peace was achieved. Anchored in (but not limited to) the ongoing UN-supported peace agreement implementation process in Mali and the monitoring process of the Final Agreement to End Armed Conflict and Build a Stable and Lasting Peace in Colombia, the seminar considers peace-building processes from the perspectives of formerly warring parties, diplomats, NGOs, and civil society, providing students an opportunity to begin to catalogue strategies for building durable peace following conflict. so

* **GLBL 450a or b, Directed Research** Sigridur Benediktsdottir

Independent research under the direction of a faculty member on a special topic in global affairs not covered in other courses. Permission of the director of undergraduate studies and of the instructor directing the research is required.

GLBL 452a / HIST 149a / HUMS 416a, The Crisis of Liberalism Staff

Is there a “crisis of liberalism” occurring in the United States and around the world? What is liberalism? If it is in crisis, what are the features of the disorder and what are possible responses? Is it possible to believe in the further progress of liberal societies, or have they fallen into a decadent condition? so o Course cr

* **GLBL 499a, Senior Capstone Project** Staff

Students work in small task-force groups and complete a one-term public policy project under the guidance of a faculty member. Clients for the projects are drawn from government agencies, nongovernmental organizations and nonprofit groups, and private sector organizations in the United States and abroad. Projects and clients vary from year to year. Fulfills the capstone project requirement for the Global Affairs major.

Global Health Studies (HLTH)

* **HLTH 081a or b, Current Issues in Medicine and Public Health** Robert Bazell
 Analysis of issues in public health and medicine that get extensive media attention and provoke policy debates. The Covid-19 pandemic has revealed severe challenges in the communication between science and health experts and the public. Thus, a prime focus is a survey of epidemiology and related topics such as vaccination attitudes. The class covers other topics including (but not limited to) the value of cancer screening, genetic testing, the U.S. role in global health, physician assisted suicide and the cost of health care. Students learn to understand the scientific literature and critique its coverage in popular media—as well as producing science and medical journalism themselves. Prerequisite: AP Biology or equivalent. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

* **HLTH 155a / E&EB 106a / MCDB 106a, Biology of Malaria, Lyme, and Other Vector-Borne Diseases** Alexia Belperron
 Introduction to the biology of pathogen transmission from one organism to another by insects; special focus on malaria, dengue, and Lyme disease. Biology of the pathogens including modes of transmission, establishment of infection, and immune responses; the challenges associated with vector control, prevention, development of vaccines, and treatments. Intended for non-science majors; preference to first-years and sophomores. Prerequisite: high school biology. SC

HLTH 230b / GBLB 223b, Global Health: Challenges and Responses Staff
 Overview of the determinants of health and how health status is measured, with emphasis on low- and middle-income countries. The burden of disease, including who is most affected by different diseases and risk factors; cost-effective measures for addressing the problem. The health of the poor, equity and inequality, and the relationship between health and development. SO o Course cr

* **HLTH 250a / E&EB 335a, Evolution and Medicine** Brandon Ogbunu
 Introduction to the ways in which evolutionary science informs medical research and clinical practice. Diseases of civilization and their relation to humans' evolutionary past; the evolution of human defense mechanisms; antibiotic resistance and virulence in pathogens; cancer as an evolutionary process. Students view course lectures on line; class time focuses on discussion of lecture topics and research papers. Prerequisite: BIOL 101-104. WR, SC

* **HLTH 385a / AFST 385a / EP&E 350a / HIST 391a / PLSC 429a, Pandemics in Africa: From the Spanish Influenza to Covid-19** Jonny Steinberg
 The overarching aim of the course is to understand the unfolding Covid-19 pandemic in Africa in the context of a century of pandemics, their political and administrative management, the responses of ordinary people, and the lasting changes they wrought. The first eight meetings examine some of the best social science-literature on 20th-century African pandemics before Covid-19. From the Spanish Influenza to cholera to AIDS, to the misdiagnosis of yaws as syphilis, and tuberculosis as hereditary, the social-science literature can be assembled to ask a host of vital questions in political theory: on the limits of coercion, on the connection between political power and scientific expertise, between pandemic disease and political legitimacy, and pervasively, across all modern African epidemics, between infection and the politics of race. The remaining four meetings look at Covid-19. We chronicle the evolving responses of policymakers,

scholars, religious leaders, opposition figures, and, to the extent that we can, ordinary people. The idea is to assemble sufficient information to facilitate a real-time study of thinking and deciding in times of radical uncertainty and to examine, too, the consequences of decisions on the course of events. There are of course so many moving parts: health systems, international political economy, finance, policing, and more. We also bring guests into the classroom, among them frontline actors in the current pandemic as well as veterans of previous pandemics well placed to share provisional comparative thinking. This last dimension is especially emphasized: the current period, studied in the light of a century of epidemic disease, affording us the opportunity to see path dependencies and novelties, the old and the new. so

* **HLTH 490a, Global Health Research Colloquium** Staff

This course is designed for Global Health Scholars in their senior year as they synthesize their academic studies and practical experiences during their time in the Global Health Studies MAP. In this weekly seminar, Global Health Scholars analyze central challenges in global health and discuss methodological approaches that have responded to these pressing global health concerns. In addition to close reading and discussion, students present on a topic of their choosing and contribute to shaping the agenda for innovative methods in global health research and policy. Prerequisite: HLTH 230 or permission of the instructor. This is a required course for Global Health Scholars and enrollment is limited to Global Health Scholars. RP

* **HLTH 495a or b, Interdisciplinary Health Research Topics** Carolyn Mazure
Empirical research project or literature review. A faculty member who establishes requirements and oversees the student's progress must sponsor each student. Registration requires the completion of the tutorial form with faculty sponsor. Tutorial forms must be submitted to the director of undergraduate studies within five business days from the start of the term. The standard minimum requirement is a written report detailing the completed research or literature review. However, alternate equivalent requirements may be set by faculty sponsors. May be elected for one or two terms. May be repeated for credit. May not be used for a senior requirement. ½ Course cr

Hebrew (HEBR)

HEBR 110a, Elementary Modern Hebrew I Dina Roginsky

Introduction to the language of contemporary Israel, both spoken and written. Fundamentals of grammar; extensive practice in speaking, reading, and writing under the guidance of a native speaker. L1 1½ Course cr

HEBR 120b, Elementary Modern Hebrew II Orit Yeret

Continuation of HEBR 110. Introduction to the language of contemporary Israel, both spoken and written. Fundamentals of grammar; extensive practice in speaking, reading, and writing under the guidance of a native speaker. Prerequisite: HEBR 110 or equivalent. L2 RP 1½ Course cr

* **HEBR 130a, Intermediate Modern Hebrew I** Shiri Goren

Review and continuation of grammatical study, leading to a deeper understanding of style and usage. Focus on selected readings and on writing, comprehension, and speaking skills. Prerequisite: HEBR 120 or equivalent. L3 RP 1½ Course cr

* **HEBR 137a, Intermediate Biblical Hebrew I** Staff

Review and continuation of grammatical study leading to a deeper comprehension of biblical Hebrew style. Focus on extended reading of biblical narrative, poetry, prophecy, and Wisdom texts. Prerequisite: HEBR 127 or equivalent. L3 RP

HEBR 140b, Intermediate Modern Hebrew II Orit Yeret

Continuation of HEBR 130. Review and continuation of grammatical study leading to a deeper comprehension of style and usage. Focus on selected readings and on writing, comprehension, and speaking skills. Prerequisite: HEBR 130 or equivalent. L4 RP
1½ Course cr

* **HEBR 147b, Intermediate Biblical Hebrew II** Staff

Continuation of HEBR 137. Prerequisite: HEBR 137 or equivalent. L4 RP

* **HEBR 150a / JDST 213a / MMES 150a, Advanced Modern Hebrew: Daily Life in Israel** Orit Yeret

An examination of major controversies in Israeli society. Readings include newspaper editorials and academic articles as well as documentary and historical material. Advanced grammatical structures are introduced and practiced. Conducted in Hebrew. Prerequisite: HEBR 140 or equivalent. L5 RP

* **HEBR 156b / JDST 405b / MMES 216b, Dynamics of Israeli Culture** Shiri Goren

Controversies in Israeli society as revealed in novels, films, poetry, newspaper articles, Web sites, art, advertisements, and television shows. Themes include migration and the construction of the Sabra character; ethnicity and race; the emergence of the Mizrahi voice; women in Israeli society; private and collective memory; the minority discourse of the Druze and Russian Jews; and Israeli masculinity and queer culture. Conducted in Hebrew. Papers may be written in English or Hebrew. Prerequisite: HEBR 140 or permission of instructor. L5, HU RP

* **HEBR 167a / JDST 402a / MMES 166a, Creative Writing in Hebrew** Orit Yeret

An advanced language course with focus on creative writing and self-expression. Students develop knowledge of modern Hebrew, while elevating writing skills based on special interests, and in various genres, including short prose, poetry, dramatic writing, and journalism. Students engage with diverse authentic materials, with emphasis on Israeli literature, culture, and society. Prerequisite: HEBR 140 or placement exam. L5 RP

* **HEBR 169a / JDST 403a / LING 165a / MMES 162a, Languages in Dialogue: Hebrew and Arabic** Dina Roginsky

Hebrew and Arabic are closely related as sister Semitic languages. They have a great degree of grammatical, morphological, and lexical similarity. Historically, Arabic and Hebrew have been in cultural contact in various places and in different aspects. This advanced Hebrew language class explores linguistic similarities between the two languages as well as cultural comparisons of the communities, built on mutual respect. Students benefit from a section in which they gain a basic exposure to Arabic, based on its linguistic similarity to Hebrew. Conducted in Hebrew. Prerequisite: HEBR 140, or placement test, or permission of the instructor. L5, HU RP

Hindi (HNDI)

* HNDI 110a, Elementary Hindi I Swapna Sharma

An in-depth introduction to modern Hindi, including the Devanagari script. A combination of graded texts, written assignments, audiovisual material, and computer-based exercises provides cultural insights and increases proficiency in understanding, speaking, reading, and writing Hindi. Emphasis on spontaneous self-expression in the language. No prior background in Hindi assumed. L1 1½ Course cr

HNDI 120b, Elementary Hindi II Swapna Sharma

Continuation of HNDI 110. After HNDI 110 or equivalent. L2 1½ Course cr

HNDI 130a, Intermediate Hindi I Mansi Bajaj

The first half of a two-term sequence designed to develop proficiency in the four language skills. Extensive use of cultural documents including feature films, radio broadcasts, and literary and nonliterary texts to increase proficiency in understanding, speaking, reading, and writing Hindi. Focus on cultural nuances and Hindi literary traditions. Emphasis on spontaneous self-expression in the language. After HNDI 120 or equivalent. L3 1½ Course cr

* HNDI 132a, Accelerated Hindi I Mansi Bajaj

A fast-paced course designed for students who are able to understand basic conversational Hindi but who have minimal or no literacy skills. Introduction to the Devanagari script; development of listening and speaking skills; vocabulary enrichment; attention to sociocultural rules that affect language use. Students learn to read simple texts and to converse on a variety of everyday personal and social topics.

L3

HNDI 140b, Intermediate Hindi II Mansi Bajaj

Continuation of HNDI 130. After HNDI 130 or equivalent. L4 1½ Course cr

* HNDI 142b, Accelerated Hindi II Mansi Bajaj

Continuation of HNDI 132. Development of increased proficiency in the four language skills. Focus on reading and higher language functions such as narration, description, and comparison. Reading strategies for parsing paragraph-length sentences in Hindi newspapers. Discussion of political, social, and cultural dimensions of Hindi culture as well as contemporary global issues. L4

HNDI 150a, Advanced Hindi Swapna Sharma

An advanced language course aimed at enabling students to engage in fluent discourse in Hindi and to achieve a comprehensive knowledge of formal grammar. Introduction to a variety of styles and levels of discourse and usage. Emphasis on the written language, with readings on general topics from newspapers, books, and magazines. Prerequisite: HNDI 140 or permission of instructor. L5

* HNDI 198a, Advanced Tutorial Staff

For students with advanced Hindi language skills who wish to engage in concentrated reading and research on material not otherwise offered by the department. Work must be supervised by an adviser and must terminate in a term paper or the equivalent. Permission to enroll requires submission of a detailed project proposal and its approval by the language studies coordinator. Prerequisite: HNDI 150 or equivalent.

* **HNDI 370b, Bhakti and Bollywood** Swapna Sharma

The goal of this advanced language course is to develop students' overall language skills and cultural sensibility, and to provide additional knowledge of Early Hindi (Braj and Awadhi) language and literature, particularly medieval Bhakti (devotion) poetry of North India, through selected readings mostly written in Braj and Awadhi. Students begin with exploring "What is Bhakti" and "What is Bhakti and the Bhakti movement?" This is followed by the stories and biographies (hagiographies) of key poets followed by selected reading of the poetry of Surdas, Mira, Raskhan, Tulasidas and Kabir etc. that have been written in honor of Krishna, Ram and formless god of Nirgun Bhakti and has enjoyed great respect and influence on Indian cultural, art, music and society. The course explores the connection between Bhakti and Bollywood. Bhakti and Bhakti poets have influenced Bollywood in various ways. This connection is seen through Bollywood movies that portray the life and times of saint-poets and adopt their poetry directly. Sometimes this poetry is used on an occasion as a performance which has no direct connection with the main theme of the film, sometimes the same old content of poetry is echoed in modern Hindi songs, while some usages are very distant from their original form and context. Prerequisite: HNDI 150 or instructor's permission. L5

History (HIST)

* **HIST 001b / AFAM 095b, African American Freedom Movements in the Twentieth Century** Crystal Feimster

Introduction to the study and writing of history, focusing on how African Americans fought for civil rights throughout the twentieth century. The civil rights movement placed in its historical context; African American freedom struggles placed in the larger narrative of U.S. history. Enrollment limited to freshmen. Preregistration required; see under Freshman Seminar Program. HU

* **HIST 006a / HSHM 005a, Medicine and Society in American History** Rebecca Tannenbaum

Disease and healing in American history from colonial times to the present. The changing role of the physician, alternative healers and therapies, and the social impact of epidemics from smallpox to AIDS. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 012a / AMST 012a, Politics and Society in the United States after World War II** Jennifer Klein

Introduction to American political and social issues from the 1940s to the present, including political economy, civil rights, class politics, and gender roles. Legacies of the New Deal as they played out after World War II; the origins, agenda, and ramifications of the Cold War; postwar suburbanization and its racial dimensions; migration and immigration; cultural changes; social movements of the Right and Left; Reaganism and its legacies; the United States and the global economy. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HIST 016a / AFAM 060a / AMST 060a, Slavery in the Archives** Edward Rugemer

This first-year seminar explores the significance of racial slavery in the history of the Americas during the eighteenth and nineteenth centuries. We read the work of historians and we explore archival approaches to the study of history. Taught in the

Beinecke Library with the assistance of curators and librarians, each week is organized around an archival collection that sheds light on the history of slavery. The course also includes visits to the Department of Manuscripts and Archives in the Sterling Library, the British Art Center, and the Yale University Art Gallery. Each student writes a research paper grounded in archival research in one of the Yale Libraries. Topics include slavery and slaveholding, the transatlantic slave trade, resistance to slavery, the abolitionist movement, the coming of the American Civil War, the process of emancipation, and post-emancipation experiences. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 018b / AMST 019b, Commodities as U.S. History** Matthew Jacobson
American social, cultural, and political history introduced through study of the production, distribution, and consumption of common commodities. Topics include political economy, slavery, industrialization, labor, the rise of the corporation, the growth of the administrative and regulatory state, geopolitics, foreign policy, and cultural change. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. RP

* **HIST 020a, Jews, Christians, and Muslims in Medieval Spain** Hussein Fancy
It is widely believed that Jews, Christians, Muslims lived together in relative harmony for significant periods of medieval Spanish history, that they experienced what has been called *convivencia*. What is more, the argument continues, because of this harmony, all benefited materially and culturally from diversity and interaction. Through careful reading of primary sources, students take a critical look at *convivencia* as both historical concept and practice. To what degree did tolerance exist in medieval Spain? And perhaps more critically, what do religious interactions in the distant past tell us about the possibilities for religious tolerance in the future. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 030a / EAST 030a, Tokyo** Daniel Botsman
Four centuries of Japan's history explored through the many incarnations, destructions, and rebirths of its foremost city. Focus on the solutions found by Tokyo's residents to the material and social challenges of concentrating such a large population in one place. Tensions between continuity and impermanence, authenticity and modernity, and social order and the culture of play. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 031a, What Makes An American?: U.S. National Identity, Founding to Present** Alvita Akiboh
What makes someone an "American"? This question has plagued the United States since its inception. Most countries, in constructing their national identity, point to shared language, culture, or ethnicity. The United States, on the other hand, has been called a "nation of immigrants," a "melting pot," or a "mosaic." These terms seek to describe how disparate groups of people from all over the globe have come together to form a nation. In this course, students grapple with questions of who has been considered "American" at different points in U.S. history, how the boundaries of this U.S. national community have been policed, and why those boundaries have changed over time to allow some to become American while continuing to exclude others. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 034b, Cuba from Slavery to Revolution** Anne Eller

Cuba's rich history from the early colonial period to the present. Topics include colonialism, slavery, independence, emancipation, the Cuban Revolution, and the nation's relationship with the United States. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 041b, The Americas in the Age of Revolutions** Marcela Echeverri Munoz

The connections, contrasts, and legacies of revolutions in the British, French, and Spanish Atlantic empires in the eighteenth and nineteenth centuries. Interactions between liberalism, black politics and antislavery, indigenous autonomy and citizenship, and revolutions in the Atlantic world between the 1760s and 1880s. Topics include the foundations of the Atlantic empires, strands of anticolonialism across the Americas, social aspects of the revolutionary movements, abolitionism and emancipation processes, and relations between the emergent American nations. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 042b, The War in Ukraine and the Problem of Evil** Marci Shore

When in November 1989 the Berlin Wall fell, political scientist Francis Fukuyama spoke of “the end of History.” Somewhat deftly we replaced one Hegelian narrative with another, now with a telos of peacefully coexistent liberal democracies bound together by free trade. February 24th, 2022 brought an end to the postcommunist narrative arc. “The world is experiencing a turning point,” German chancellor Olaf Scholz announced. This turning point is the end of the “the end of History.” We now know that there is no such thing as a liberal teleology of progress. Fascism and totalitarianism are no less real today for taking on a postmodern form than they were nearly a century ago. The fall of what Ronald Reagan called the Evil Empire – the most far-reaching social engineering experiment ever performed on mankind – has not brought about the dissolution of evil. This seminar examines the war in Ukraine largely from an intellectual history perspective, with attention to the meaning of the Soviet experiment; the rise of new regimes of tyranny drawing upon post-truth; what Hannah Arendt calls “natality” and the uniquely human capacity for action; and the problem of evil in a postmodern world. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HIST 061b, Information Revolutions: From the Origins of Writing to the Digital Age** Michael Printy

This course explores the history of information and its organization from the origins of writing to the present day. The course focuses on technologies of knowledge and information sharing (or hoarding) as they are embedded in social and political contexts, with an emphasis on paradigm shifts and on losses and gains as new systems of information organization replace old ones. The thematic focus is on the Western tradition and on scholarly knowledge, though students may explore other traditions and parts of the world in their research projects. Class structure consists of discussion of theoretical and historical readings selected by experts followed by hands-on interaction with special collection materials and site visits. The course introduces students to the multiple collections, curators, and librarians at Yale and serves to deepen their understanding of the modern research library. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

*** HIST 068a, The Global Gandhi: Histories of Nonviolent Resistance** Sunil Amrith

At a time of rising violence and polarization both within and between nations, what can we learn from the history of nonviolent political action? This course examines the life and the afterlives of Mohandas (“Mahatma”) Gandhi, who led India’s struggle for independence from British colonial rule. Gandhi’s practice of nonviolent struggle was shaped by multiple influences – by reading Thoreau and Tolstoy, by his experiences as a migrant Indian lawyer and journalist in South Africa, as well as by multiple Indian religious traditions. In turn, after his death Gandhi became an icon and an inspiration for political movements around the world, including the Civil Rights movement in the US and the anti-Apartheid struggle in South Africa. HU

*** HIST 086b / MMES 086b, Cairo, 1850-Present** Omnia El Shakry

This course explores the history of Cairo from the middle of the nineteenth century to the present. We examine various facets of modern Cairo ranging from architectural modernism to urban expressions of Christian and Muslim piety, while focusing on the principal political, cultural, and social factors that have shaped the city. Themes include political technologies; colonial modernity; artifacts and architecture; workers and students; capitalism, commodities, and consumerism; gender and sexuality; policing and surveillance; urban expansion; piety; the everyday; soundscapes; and the 2011 Uprising. We mobilize a diverse array of primary and secondary sources, novels, films, music, art, and architecture in our exploration, with an emphasis on work produced in Cairo. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

*** HIST 101Ja, History of Incarceration in the U.S.** Regina Kunzel

This course explores the history of incarceration in the U.S. over more than two centuries. Among the topics we explore are the carceral conditions of slavery; the rise of the penitentiary and racial control; convict leasing and other forms of prison labor; the prisoners’ rights movement in the late 1960s and early 1970s; the effects of “welfare reform,” the “war on drugs” and the “war on crime” on the mass incarceration of the late twentieth century; immigration detention; and the privatization and globalization of carceral practices. WR, HU

HIST 104a / GLBL 207a, The World Circa 2000 Staff

The World Circa 2000 is a global history of the present since ~ 1960. The course moves thematically to consider topics including, decolonization and nation building in the global south, crises of nationalism and recurrent authoritarianism, the politics of aid, humanitarianism and neo-liberalism, technophilia, environmentalism and networked societies, climate change and ‘free trade,’ new religious fundamentalisms and imagined solidarities, celebrity, individuality, and consumerism in China, the United States, and beyond. HU o Course cr

HIST 107b / AMST 133b / ER&M 187b, Introduction to American Indian History

Ned Blackhawk

Survey of American Indian history, beginning with creation traditions and migration theories and continuing to the present day. Focus on American Indian nations whose homelands are located within the contemporary United States. Complexity and change within American Indian societies, with emphasis on creative adaptations to changing historical circumstances. HU o Course cr

HIST 109a / EVST 109a, Climate & Environment in American History: From Columbian Exchange to Closing of the Frontier Staff

This lecture course explores the crucial role that climate and environmental conditions have played in American history from the period of European colonization to the end of the 19th century. Its focus is on the dramatic changes brought about by the encounters among Indigenous, European, and African peoples in this period, the influence of climate and climate change on these encounters, and the environmental transformations brought about by European colonization and conquest and the creation of new economies and politics (including chattel slavery). The lectures offer a new framework for organizing and periodizing North American history, based on geographical and environmental conditions rather than traditional national and political frameworks. The course provides a historical foundation for understanding contemporary American (and global) climate and environmental issues. HU
o Course cr

*** HIST 109Jb / HSHM 489b, Activism and Advocacy in the History of American Health Care** Kelly O'Donnell

Is health care a human right? Can health advocacy shape health policy? What does it mean to be a health “activist” and to demand change of medicine? Health care in America has always been political. In this seminar students explore the rich history of health activism and health advocacy in the modern United States, focusing primarily on the postwar period through the present day. Each week we encounter new varieties of grassroots organizing, individual activists, and advocacy organizations that have made political claims about health care and pushed for its reform. We examine how health activism shapes broader cultural conversations about health and the practice of medicine itself. This course does not aim to provide a comprehensive history of health activism in modern America, but rather takes a case study approach, for critical analysis of themes and tactics. For each session, students read a selection of essays, book chapters, or primary source materials about a particular variety of health activism. Through these readings, we discuss how the critiques of activists and the responses by medical practitioners reveal the significant impact of race, gender, class, and sexuality on the provision of health care in this country. We also consider how historians have approached this subject, both as scholars and participant-observers. Students become adept at primary source analysis and able to engage in scholarly conversations with secondary sources. WR, HU

*** HIST 111Ja / HSHM 426a, Race and Mental Health in New Haven** Marco Ramos

Recent scholarship in the humanities has critically examined the violence that the mental health care system has inflicted on marginalized communities in the United States. This advanced research seminar explores race, mental health, and harm through the local history of New Haven. We interrogate the past and present of Yale University’s relationship to the surrounding community by unearthing the history of “community mental health” at Yale in the 1960s. In particular, the seminar is built around a newly discovered archive in the Connecticut Mental Health Center (CMHC), an institution that was developed as an urban renewal project that displaced citizens from their homes and jobs in the Hill Neighborhood. The archive details, among other things, the contentious relationship between Yale University and activist community organizations in New Haven during this period, including the Black Panthers and Hill Neighborhood Parents Association. Students develop original research papers based on archival

materials. The seminar touches on historical methodology, archiving practices, and how to circulate knowledge about community healing and harm within and beyond the academy. Organizers in New Haven will be invited to reflect on our work at the end of the seminar. Priority is given to undergraduate juniors and seniors. WR, HU

* **HIST 112a / AMST 328a / ER&M 357a / HUMS 418a, "None Dare Call It Conspiracy:" Paranoia and Conspiracy Theories in 20th and 21st C. America**
Staff

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU

* **HIST 112Ja / WGSS 112a, Early Histories of Sexuality** Caleb Knapp

This course examines histories of sexuality across a range of colonial and national contexts, including the British Caribbean, colonial Hawai'i, Mexico, and India, the U.S. South, and the North American West. It tracks how people thought about, regulated, and engaged in sex prior to the emergence of sexuality as a category of knowledge and explores the historiographical challenges of narrating histories of sex before sexuality. WR, HU

* **HIST 115Jb / AFAM 349b / AMST 326b / WGSS 388b, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

HIST 116b, The American Revolution Joanne Freeman

The American Revolution from the perspective of the colonists; their shifting identities as English subjects, colonial settlers, revolutionaries, and Americans. Readings include contemporary correspondence and eyewitness accounts. HU

* **HIST 117b / AMST 307b / ER&M 298b / LITR 375b / MGRK 306b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. #t pays attention to the everyday lives of the Greek Americans as

demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. n/a WR, HU

*** HIST 118Jb, U.S. Immigration Policy: History, Politics, and Activism, 1607–Present**
Brendan Shanahan

How can we study a history so broad, complex, and evolving as the history of American immigration policy? This course explores that question by studying U.S. immigration law, politics, and activism from the colonial era to the present day. Chronologically, we particularly examine: (1) antebellum immigration policy in the context of forced migration, settler colonialism, and slavery, (2) the rise of a federal “gatekeeping” immigration regime in the post-Civil War era, and (3) transformations in immigration policymaking and policies during the long twentieth century. Thematically, we emphasize how U.S. immigration policies have often been framed – and challenged by immigrant rights advocates – on the grounds of racialized and gendered exclusion and/or subordination. WR, HU

*** HIST 123a / AMST 430a / ANTH 430a / ER&M 432a, Muslims in the United States**
Zareena Grewal

Since 9/11, cases of what has been termed “home-grown terrorism” have cemented the fear that “bad” Islam is not just something that exists far away, in distant lands. As a result, there has been an urgent interest to understand who American Muslims are by officials, experts, journalists, and the public. Although Muslims have been part of America’s story from its founding, Muslims have alternated from an invisible minority to the source of national moral panics, capturing national attention during political crises, as a cultural threat or even a potential fifth column. Today the stakes are high to understand what kinds of meanings and attachments connect Muslims in America to the Muslim world and to the US as a nation. Over the course of the semester, students grapple with how to define and apply the slippery concept of diaspora to different dispersed Muslim populations in the US, including racial and ethnic diasporas, trading diasporas, political diasporas, and others. By focusing on a range of communities-in-motion and a diverse set of cultural texts, students explore the ways mobility, loss, and communal identity are conceptualized by immigrants, expatriates, refugees, guest-workers, religious seekers, and exiles. To this end, we read histories, ethnographies, essays, policy papers, novels, poetry, memoirs; we watch documentary and fictional films; we listen to music, speeches, spoken word performances, and prayers. Our aim is to deepen our understanding of the multiple meanings and conceptual limits of homeland and diaspora for Muslims in America, particularly in the Age of Terror. HU

*** HIST 126Jb, Witchcraft in Colonial America** Rebecca Tannenbaum

This class examines the social, religious, economic, and gender history of British North America as it manifested itself through witchcraft beliefs and trials. We also explore the portrayal of the trials in literature and the continuing resonance of witchcraft in modern American culture. WR, HU

HIST 128a / AMST 228a / GLOBL 201a, Origins of U.S. Global Power Staff

This course examines the causes and the consequences of American global power in the “long 20th century,” peeking back briefly into the 19th century as well as forward into the present one. The focus is on foreign relations, which includes but is not limited to foreign policy; indeed, America’s global role was rooted as much in its economic and cultural power as it was in diplomacy and military strength. We study events like wars, crises, treaties, and summits—but also trade shows and movie openings. Our principal subjects include plenty of State Department officials, but also missionaries, business people, and journalists. We pay close attention also to conceptions of American power; how did observers in and beyond the United States understand the nature, origins, and operations of American power? HU o Course cr

*** HIST 131Ja / ER&M 392a, Urban History in the United States, 1870 to the Present**

Jennifer Klein

The history of work, leisure, consumption, and housing in American cities. Topics include immigration, formation and re-formation of ethnic communities, the segregation of cities along the lines of class and race, labor organizing, the impact of federal policy, the growth of suburbs, the War on Poverty and Reaganism, and post-Katrina New Orleans. WR, HU

*** HIST 133Ja, The Creation of the American Politician, 1789–1820** Joanne Freeman

The creation of an American style of politics: ideas, political practices, and self-perceptions of America’s first national politicians. Topics include national identity, the birth of national political parties, methods of political combat, early American journalism, changing conceptions of leadership and citizenship, and the evolving political culture of the early republic. WR, HU

*** HIST 134Jb, Yale and America: Selected Topics in Social and Cultural History** Jay

Gitlin

Relations between Yale and Yale people—from Ezra Stiles and Noah Webster to Cole Porter, Henry Roe Cloud, and Maya Lin—and American society and culture. Elihu Yale and the global eighteenth century; Benjamin Silliman and the emergence of American science; Walter Camp, Dink Stover, and the all-American boy; Henry Luce and the information age; faith and ideology in postwar Yale and America. WR, HU

*** HIST 135Jb, The Age of Hamilton and Jefferson** Joanne Freeman

The culture and politics of the revolutionary and early national periods of American history, using the lives, ideas, and writings of Thomas Jefferson and Alexander Hamilton as a starting point. Topics include partisan conflict, political culture, nation building, the American character, and domestic life. WR, HU

HIST 140a / HSHM 215a, Public Health in America, 1793 to the Present Staff

A survey of public health in America from the yellow fever epidemic of 1793 to AIDS and breast cancer activism at the end of the past century. Focusing on medicine and the state, topics include quarantines, failures and successes of medical and social welfare, the experiences of healers and patients, and organized medicine and its critics. HU o Course cr

HIST 149a / GLOBL 452a / HUMS 416a, The Crisis of Liberalism Staff

Is there a “crisis of liberalism” occurring in the United States and around the world? What is liberalism? If it is in crisis, what are the features of the disorder and what are

possible responses? Is it possible to believe in the further progress of liberal societies, or have they fallen into a decadent condition? SO o Course cr

* **HIST 150Jb / HSHM 406b, Healthcare for the Urban Underserved** Sakena Abedin
Exploration of the institutions, movements, and policies that have attempted to provide healthcare for the urban underserved in America from the late nineteenth century to the present, with emphasis on the ideas (about health, cities, neighborhoods, poverty, race, gender, difference, etc) that shaped them. Topics include hospitals, health centers, public health programs, the medical civil rights movement, the women's health movement, and national healthcare policies such as Medicare and Medicaid. WR, HU

* **HIST 151Ja / AMST 422a / ER&M 435a, Writing Tribal Histories** Ned Blackhawk
Historical overview of American Indian tribal communities, particularly since the creation of the United States. Challenges of working with oral histories, government documents, and missionary records. WR, HU

* **HIST 154Ja, Neighboring Democracies: Representative Politics in the United States and Canada, 1607-Present** Brendan Shanahan

This seminar examines how representative politics have evolved in the United States and Canada from the turn of the seventeenth century to the present. Students learn diverse ways in which forms of liberal democracy—republicanism and constitutional monarchy in particular—have emerged in North America, how processes of democratization have operated, and the degree to which representative governments in Canada and the U.S. borrow from and emerge out of common and/or disparate contexts. Special emphasis is placed on—but is not limited to—the history of suffrage and voting rights in the United States and Canada. WR, HU

* **HIST 156Jb, Capitalism, Labor, & Class Politics in Modern U.S.** Jennifer Klein
History of American capitalism from the mid-19th century through the 21st century. This course examines different modes of capitalist accumulation and creation of landscapes, territories, boundaries. Readings address how regionalism, race, and class power shaped the development of American capitalism. We consider the continuum of free and coerced labor well after the end of slavery in the U.S. We read about indigenous communities, the environment, energy politics, and on-going struggles with the state. This mix of labor history, social theory, intellectual history, business history, social history, and geography also impel us to imagine the workings of American capitalism beyond the borders of the nation—to think about how capitalists and workers move through space and reshape space; the exchange of workers, ideas, technologies, and resources across national, imperial, and oceanic boundaries. WR, HU

HIST 165b / AMST 199b, The American Century Beverly Gage

United States politics, political thought, and social movements in the 20th century. Pivotal elections and political figures (Wilson, Roosevelt, Nixon, Reagan) as well as politics from below (civil rights, labor, women's activism). Emphasis on political ideas such as liberalism, conservatism, and radicalism, and on the intersection between domestic and foreign affairs. Primary research in Yale archival collections. Students who have already completed HIST 136J must have the instructor's permission to enroll in this course, and will perform alternate readings during some weeks. HU o Course cr

* **HIST 167a / PLSC 209a, Congress in the Light of History** David Mayhew

This reading and discussion class offers an overview of U.S. congressional history and politics from 1789 through today, including separation-of-powers relations with

the executive branch. Topics include elections, polarization, supermajority processes, legislative productivity, and classic showdowns with the presidency. Emphasized is Congress's participation in a sequence of policymaking enterprises that have taken place from the launch of the nation through recent budget difficulties and handling of climate change. Undergrads in political science and history are the course's typical students, but anyone is welcome to apply. SO

*** HIST 168Ja, Quebec and Canada from 1791 to the Present** Jay Gitlin

The history of Quebec and its place within Canada from the Constitutional Act of 1791 to the present. Topics include the Rebellion of 1837, confederation, the Riel Affair, industrialization and emigration to New England, French-Canadian nationalism and culture from Abbé Groulx to the Parti Québécois and Céline Dion, and the politics of language. Readings include plays by Michel Tremblay and Antonine Maillet in translation. WR, HU

*** HIST 181Jb, Time Machines: Reimagining the Past** John Gaddis

This course explores how representations of the past can help us to reimagine it, and thereby to “travel” there. We explore the concept of time machines and the means by which they might be#or are#constructed. This involves a quick review of the physics involved; some ways historians have used archives to reconstruct times past; the extent to which novelists complement, contradict, or complicate the work of historians; the possibility of “animating” past visual representations, whether through art, film, or computer simulation; and as individual student projects the reading of some digitally available newspaper for some particular place in some particular year. WR, HU

HIST 183a / AMST 272a / ER&M 282a / WGSS 272a, Asian American History, 1800 to the Present Staff

An introduction to the history of East, South, and Southeast Asian migrations and settlement to the United States from the late eighteenth century to the present. Major themes include labor migration, community formation, U.S. imperialism, legal exclusion, racial segregation, gender and sexuality, cultural representations, and political resistance. HU o Course cr

HIST 184a / AFAM 160a / AFST 184a / AMST 160a, The Rise and Fall of Atlantic Slavery Staff

The history of peoples of African descent throughout the Americas, from the first African American societies of the sixteenth century through the century-long process of emancipation. HU o Course cr

HIST 187b / AFAM 162b / AMST 162b, African American History from Emancipation to the Present Elizabeth Hinton

An examination of the African American experience since 1861. Meanings of freedom and citizenship are distilled through appraisal of race and class formations, the processes and effects of cultural consumption, and the grand narrative of the civil rights movement. WR, HU o Course cr

HIST 188b / AMST 234b / ER&M 243b / RLST 342b, Spiritual But Not Religious Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

*** HIST 190Ja / HSHM 497a, Technology in American Medicine from Leeches to Surgical Robots** Kelly O'Donnell

From leeches to robot-assisted surgery, technology has both driven and served as a marker of change in the history of medicine. Using technology as our primary frame of analysis, this course focuses on developments in modern medicine and healing practices in the United States, from the nineteenth century through the present day. How have technologies, tools, and techniques altered medical practice? Are medical technologies necessarily “advances?” How are technologies used to “medicalize” certain aspects of the human experience? In this class we focus on this material culture of medicine, particularly emphasizing themes of consumerism, expertise, professional authority, and gender relations. WR, HU

*** HIST 196Jb / AMST 353b, 21st-Century US History: The First Decade** Joanne Meyerowitz

Students conduct collaborative primary source research on the first ten years of the 21st century. Topics include September 11th, the wars in Iraq and Afghanistan, Hurricane Katrina, the financial crisis of 2008, the election of Barack Obama, and battles over domestic surveillance, immigration, policing, gun control, same-sex marriage, and reproductive rights. WR, HU

*** HIST 197Jb / HSHM 409b, Marriage and Medicine in Modern America** Kelly O'Donnell

This seminar explores histories of health, gender, and sexuality, by focusing on the intertwining of two institutions that have fundamentally shaped our culture: medicine and marriage. It uses marriage as a lens for viewing the historical and social transformations of the American medical profession, as well as to examine the medicalization of intimate relationships in the broader society. Weekly readings cover topics such as: eugenics, LGBTQ marriage and adoption, disability rights, sexuality and reproduction, sex education, health activism, the changing gender composition of the health professions, and the reform of medical education and training. Students also analyze a variety of primary sources, ranging from scientific studies and medical advice literature to popular magazines and romantic comedy films. WR, HU

HIST 199b / AMST 236b / EVST 318b / HSHM 207b, American Energy History Paul Sabin

The history of energy in the United States from early hydropower and coal to present-day hydraulic fracturing, deepwater oil, wind, and solar. Topics include energy transitions and technological change; energy and democracy; environmental justice and public health; corporate power and monopoly control; electricity and popular culture; labor struggles; the global quest for oil; changing national energy policies; the climate crisis. WR, HU o Course cr

HIST 204b / CLCV 200b / GLOBL 204b, Global Leadership, 600 BCE–600 CE Staff

This course provides students with an accessible and engaging introduction to both the classical world and the problems of political organization and leadership through time and across societies. Students learn to think comparatively between individuals, societies, and systems and to analyze different ideals of leadership. This means considering not only traditional masculine and military conceptions of rule but also the leadership roles and styles of women, slaves, and rebels. We hope to bring into view, in other words, the intersectional challenges to power faced by non-traditional leaders in a world dominated by gender, class, and cultural prejudices, and to show how non-

traditional leaders confronted and overcame these. Students draw upon this experience to access the premodern world as an alternative but related historical reality which can productively inform their engagement with the present. HU o Course cr

HIST 205a / CLCV 205a, Introduction to Ancient Greek History Staff

Introduction to Greek history, tracing the development of Greek civilization as manifested in the political, military, intellectual, and creative achievements from the Bronze Age through the end of the Classical period. Students read original sources in translation as well as secondary scholarship to better understand the rise and fall of the ancient Greeks – the civilization at the very heart of Western Civilization. HU o Course cr

HIST 210a, Early Middle Ages, 284-1000 Staff

Major developments in the political, social, and religious history of western Europe from the accession of Diocletian to the feudal transformation. Topics include the conversion of Europe to Christianity, the fall of the Roman Empire, the rise of Islam and the Arabs, the "Dark Ages," Charlemagne and the Carolingian renaissance, and the Viking and Hungarian invasions. HU o Course cr

* **HIST 210Jb / HUMS 224b, Hobbes and Galileo: Materialism and the Emergence of Modernity** William Klein

Hobbes considered himself a disciple of Galileo, but as a systematic philosopher and ideologue during a period of civil unrest in England, he no doubt produced something that Galileo, a Tuscan astrophysicist and impassioned literary critic, was not entirely responsible for: an absolutist theory of the modern state situated within an eschatological time frame. In this course we will reflect on the relation between Galileo's anti-Aristotelian physics and Hobbes' system by reading key texts by Galileo and Hobbes along with an array of interpretations and criticisms of Hobbes that will serve to situate Hobbes in early modern currents of thought in science, religion and politics, while at the same time situating us in contemporary ideological debates about the origins of modernity. HU

HIST 211b, The Birth of Europe, 1000-1500 Hussein Fancy

Europe during the central and late Middle Ages, from the feudal revolution to the age of discoveries. Europe as it came to be defined in terms of national states and international empires. The rise and decline of papal power, church reform movements, the Crusades, contacts with Asia, the commercial revolution, and the culture of chivalry.

HU o Course cr

HIST 212a / CLCV 223a, The Ancient Economy Staff

A survey of the economies of the ancient Mediterranean world, with emphasis on economic institutions, the development of the economies over time, ancient economic thought, and the interrelationships between institutions and economic growth. Material evidence for studying the economies of the ancient world, including coinage, documentary material, and archaeology. HU o Course cr

* **HIST 212Jb / HUMS 313b, Philosophy of Dissent in Central and Eastern Europe** Marci Shore

This is a seminar in the field of European intellectual history, based on primary sources. It focuses on how philosophers, novelists, sociologists, and other thinkers developed and articulated a philosophy of dissent under communism. More specific topics include the relationships between temporality and subjectivity and between truth and lies, and

the role that existentialism played in formulating philosophical critiques of repression. Readings consist of a mixture of philosophical and literary works from the Soviet Union, East Germany and the lands in-between. Potential authors include Merab Mamardashvili, Danilo Kiš, Józef Tischner, Adam Michnik, Jacek Kuro#, Ladislav Hejdanek, Václav Havel, Jan Patočka, Leszek Kołakowski, Gajo Petrovi#, Norman Manca, Lev Kopelev, Igor Pomerantsev, Tomas Venclova. HU

* **HIST 215Jb, The Art of Biography** John Gaddis

A comparative examination of successful as well as unsuccessful biographies, intended to identify both principles and pitfalls. HU

HIST 217a / CLCV 206a / HUMS 144a, The Roman Republic Staff

The origins, development, and expansion of Rome from the earliest times to the deaths of Caesar and Cicero. Cultural identity and interaction; slavery, class, and the family; politics, rhetoric, and propaganda; religion; imperialism; monumentality and memory; and the perception and writing of history. Application of literary and archaeological evidence. HU o Course cr

HIST 218b / CLCV 207b, The Roman Empire Staff

The history of the Roman Empire from its establishment by Augustus to the reign of Justinian. Attention to social, intellectual, and religious changes, as well as to the framework of historical events within which these changes took place, and to the processes by which the Roman Empire was replaced by the institutions of the Western Middle Ages and the Byzantine Empire. HU o Course cr

HIST 219a / ER&M 219a / JDST 200a / MMES 149a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

* **HIST 220Ja, Grand Strategy and the Origins of the Second World War** Paul Kennedy

A survey of the most important literature and debates concerning the coming of the Second World War in both Europe and the Pacific. Emphasis on the comparative approach to international history and on the interplay of domestic politics, economics, and strategy. Counts toward only European distributional credit within the History major. WR, HU RP

* **HIST 222Jb / RSEE 222b, Russia and the Eurasian Steppe** Paul Bushkovitch
A study of Russia's interaction with the nomads of the Eurasian steppe. Topics include the Mongol invasion, the Mongol Empire in Asia and the Golden Horde, Islam, nomadic society, and the Russian state. Focus on conquest and settlement. May count toward either European or Asian distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU

* **HIST 224Ja / GLBL 224a, Empires and Imperialism Since 1840** Arne Westad
Empire has been a main form of state structure throughout much of human history. Many of the key challenges the world faces today have their origins in imperial structures and policies, from wars and terror to racism and environmental destruction.

This seminar looks at the transformation empires and imperialisms went through from the middle part of the nineteenth century and up to today. Our discussions center on how and why imperialisms moved from strategies of territorial occupation and raw exploitation, the “smash and grab” version of empire, and on to policies of racial hierarchies, social control and reform, and colonial concepts of civilizational progress, many of which are still with us today. The seminar also covers anti-colonial resistance, revolutionary organizations and ideas, and processes of decolonization. WR, HU

HIST 225a / CLCV 236a, Roman Law Staff

Basic principles of Roman law and their applications to the social and economic history of antiquity and to the broader history of international law. Topics include the history of persons and things, inheritance, crime and tort, and legal procedure. Questions of social and economic history and the history of jurisprudence from the fifth century B.C.E. to the present. HU o Course cr

* **HIST 225Ja, Perfect Worlds? Utopia and Dystopia in Western Cultures** Maria Jordan

This course explores the history of utopia and the ways in which societies at different times defined and conceived alternative or ideal worlds. It explores the relationship between real historical conditions and the models of utopia that were elaborated. By examining classic texts like Plato and Thomas More, as well as fictional accounts, students discuss the relationship between utopias and dystopias. The course also discusses how the crises of the last century, with WWII, the fall of the Soviet Union, and the difficulties of global capitalism provoked what some people now consider to be a crisis of utopian thought or, a moment of a redefinition of utopias as more pragmatic, inclusive, and egalitarian of societies. WR, HU

* **HIST 226Jb / JDST 370b / RLST 231b, How the West Became Antisemitic: Jews and the Formation of Europe 800-1500** Ivan Marcus

Students study how Jews and Christians interacted on a daily basis as medieval Europe became more restrictive and antisemitic, a contributing factor to the Holocaust. In this writing seminar, students discuss a variety of primary sources in class#laws, stories, chronicles, images#while researching and writing their own seminar paper structured by sessions on topics, bibliographies, and outlines. WR, HU

HIST 231b / HUMS 277b, European Intellectual History from Renaissance to Revolution Isaac Nakhimovsky

A survey of eighteenth-century European intellectual life, considered in its social and cultural contexts and with attention to its historical legacies, focusing on responses to emerging global networks of trade, finance, and empire. HU o Course cr

HIST 232b / ER&M 231b, Hitler, Stalin, and Us Timothy Snyder

This course presents the study of the Stalinist and Nazi regimes, reviews the mass atrocities of the mid-twentieth century, and considers the legacies of these regimes in contemporary memory and politics. HU

* **HIST 232Ja / HUMS 443a / JDST 270a / MMES 342a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness—humans or devils, purity or impurity, and animal imagery; and models of religious community

and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

HIST 234Ja / RLST 234a, History of the Supernatural from Antiquity to Modernity

Carlos Eire

This survey course aims to provide an introduction to ancient, medieval, and early modern Western beliefs in supernatural forces, as manifested in saints, mystics, demoniacs, ghosts, witches, relics, miracles, magic, charms, folk traditions, fantastic creatures and sacred places. Using a wide range of primary sources and various historical methodologies, our aim is to better understand how beliefs and worldviews develop and change and the ways in which they shape and determine human behavior. This course is not open to students previously enrolled in HIST 299. HU

* **HIST 236Ja / HUMS 323a, Truth and Sedition** William Klein

The truth can set you free, but of course it can also get you into trouble. How do the constraints on the pursuit and expression of “truth” change with the nature of the censoring regime, from the family to the church to the modern nation-state? What causes regimes to protect perceived vulnerabilities in the systems of knowledge they privilege? What happens when conflict between regimes implicates modes of knowing? Are there types of truth that any regime would—or should—find dangerous? What are the possible motives and pathways for self-censorship? We begin with the revolt of the Hebrews against polytheistic Egypt and the Socratic questioning of democracy, and end with various contemporary cases of censorship within and between regimes. We consider these events and texts, and their reverberations and reversals in history, in relation to select analyses of the relations between truth and power, including Hobbes, Locke, Kant, Brecht, Leo Strauss, Foucault, Chomsky, Waldron, Zizek, and Xu Zhongrun. WR, HU

HIST 239a, Britain's Empire since 1763 Staff

The varieties of rule in different parts of Britain's vast empire, from India to Africa to the West Indies. Ways in which events in one region could redirect policy in distant ones; how British observers sought to reconcile empire's often authoritarian nature with liberalism and an expanding democracy at home; the interaction of economic, cultural, political, and environmental factors in shaping British imperial development. HU o Course cr

HIST 240a / RLST 347a / SOCY 331a / WGSS 291a, Sexual Minorities from Plato to the Enlightenment Staff

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's

condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham.

HU o Course cr

* **HIST 240Jb / RSEE 241b, Government, Law, and Society in Modern Russia, 1853-1953** Sergei Antonov

Russian political culture from the Crimean War to the death of Stalin. Special attention to continuities, as well as changes, across the revolutionary divide of 1917, and to comparing official policies with daily experiences of ordinary Russians. Changing ideologies and ruling styles of tsars and early Soviet leaders (esp. Lenin, Trotsky, and Stalin) and relations with aristocratic and bureaucratic elites; political dissent and protest, including popular and state-imposed violence; the problem of legality and the rule of law. All discussions and readings in English. WR, HU

* **HIST 242Jb / CLCV 319b / MGRK 300b / WGSS 293b, The Olympic Games, Ancient and Modern** George Syrimis

Introduction to the history of the Olympic Games from antiquity to the present. The mythology of athletic events in ancient Greece and the ritual, political, and social ramifications of the actual competitions. The revival of the modern Olympic movement in 1896, the political investment of the Greek state at the time, and specific games as they illustrate the convergence of athletic cultures and sociopolitical transformations in the twentieth century. HU

* **HIST 245Ja or b / GLBL 289a or b / PLSC 431a or b, War and Peace in Northern Ireland** Bonnie Weir

Examination of theoretical and empirical literature in response to questions about the insurgency and uneasy peace in Northern Ireland following the peace agreement of 1998 which formally ended the three-decade long civil conflict known widely as The Troubles and was often lauded as the most successful of its kind in modern history. Consideration of how both the conflict and the peace have been messier and arguably more divisive than most outside observers realize. SO

HIST 246b / EVST 189b, The History of Food Paul Freedman

The history of food and culinary styles from prehistory to the present, with a particular focus on Europe and the United States. How societies gathered and prepared food. Changing taste preferences over time. The influence of consumers on trade, colonization, and cultural exchange. The impact of colonialism, technology, and globalization. The current food scene and its implications for health, the environment, and cultural shifts. HU o Course cr

* **HIST 247a, The Making of Modern Ukraine** Staff

Study of the Ukraine from the Cossack rebellions of 1648 to the democratic revolution of 2004. Topics include the decadence of the Polish-Lithuanian Republic, Russian and Austrian imperial rule, the collapse of traditional Jewish and Polish social life, the attraction of Russian culture, the emergence of a Ukrainian national movement, civil war, modernization, terror, the consequences of Nazi occupation (including genocide and ethnic cleansing), problems of democratic reform, and European integration since 1991. WR, HU o Course cr

* **HIST 250b, Gender and Sexuality in Modern Europe** Carolyn Dean

European concepts of gender and sexuality from the Enlightenment to the present. Changing constructions of ideas about womanhood and manhood; the relationship between gender and politics. WR, HU o Course cr

HIST 254b / GMAN 208b, Germany from Unification to Refugee Crisis Jennifer Allen

The history of Germany from its unification in 1871 through the present. Topics include German nationalism and national unification; the culture and politics of the Weimar Republic; National Socialism and the Holocaust; the division of Germany and the Cold War; the Student Movement and New Social Movements; reunification; and Germany's place in contemporary Europe. HU o Course cr

* **HIST 262Ja, Union and Empire in the History of Political Thought** Isaac Nakhimovsky

This course explores the relationship between the history of political thought and European imperial expansion from the sixteenth through nineteenth centuries, with a focus on the development of ideas of the nation state and forms of federation as putative alternatives to (or alternate forms of) empire. Readings and class discussions aim to define a historical and conceptual framework for investigating a wide variety of other primary sources that illuminate the history of union and empire as a economic, social, religious, political, and legal process. WR, HU

* **HIST 268Ja / JDST 351a / PLSC 466a / RLST 324a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

* **HIST 269Ja, History and Holocaust Testimony** Carolyn Dean

The history and memoirs of Holocaust testimony. How victims' experiences are narrated and assessed by historians. Questions regarding memory and history. WR, HU

HIST 271a / HUMS 339a / RSEE 271a, European Intellectual History since Nietzsche Staff

Major currents in European intellectual history from the late nineteenth century through the twentieth. Topics include Marxism-Leninism, psychoanalysis, expressionism, structuralism, phenomenology, existentialism, antipolitics, and deconstruction. HU o Course cr

* **HIST 274Jb, Colonialism and Psychology** Omnia El Shakry

This seminar is a thematic exploration of colonialism as a historical, cultural, and, above all psychological experience. We explore topics such as the relation between Self and Other (Colonizer and Colonized) in the colonial encounter; the psychoanalysis of race and racism; violence and decolonization; psychopolitics; gender, language, and the intimacy of the colonial encounter; and the psychic life of the postcolony. We follow the itineraries of the renowned Martinican psychiatrist and philosopher Frantz

Fanon (1925–1961) from the Antilles to metropolitan France, to colonial Algeria. We shall begin in the colony—‘Albert Camus’s Algeria’—and end in postcolonial Paris. We mobilize a diverse array of primary and secondary sources, novels, and films in our exploration, traversing Europe, the Antilles, and North Africa, with a primary emphasis on French colonialism in Algeria and its aftermath in the postcolony. WR, HU

*** HIST 277Ja, Memory and History in Modern Europe** Jennifer Allen

An interdisciplinary study of memory as both a tool in and an agent of modern European history. Collective memory; the media of memory; the organization and punctuation of time through commemorative practices. Specific themes vary but may include memory of the French Revolution, the rise of nationalism, World Wars I and II, the Holocaust, decolonization, the revolution of 1968, the fall of the Berlin Wall, and the end of the Cold War. WR, HU

HIST 280a / ITAL 315a / RLST 160a, The Catholic Intellectual Tradition Staff

Introductory survey of the interaction between Catholicism and Western culture from the first century to the present, with a focus on pivotal moments and crucial developments that defined both traditions. Key beliefs, rites, and customs of the Roman Catholic Church, and the ways in which they have found expression; interaction between Catholics and the institution of the Church; Catholicism in its cultural and sociopolitical matrices. Close reading of primary sources. HU o Course cr

HIST 290a / RSEE 225a, Russia from the Ninth Century to 1801 Staff

The mainstream of Russian history from the Kievan state to 1801. Political, social, and economic institutions and the transition from Eastern Orthodoxy to the Enlightenment. HU o Course cr

*** HIST 293a / RSEE 325a / RUSS 325a / URBN 303a, Ten Eurasian Cities** Nariman Shelekpayev

This course explores histories and identities of ten cities in Northern and Central Eurasia. Its approach is based on an assumption that studying cities is crucial for an understanding of how societies developed on the territory of the Russian Empire, the Soviet Union, and post-Soviet states. The course is structured around the study of ten cities—Kyiv, Saint Petersburg, Moscow, Odesa, Baku, Magnitogorsk, Kharkiv, Tashkent, Semey (former Semipalatinsk), and Nur-Sultan (former Astana)—that are located on the territory of modern Ukraine, Russia, Central Asia, and the Caucasus. We study these cities through the prism of various scholarly approaches, as well as historical and visual sources. Literary texts are used not only as a means to illustrate certain historical processes but as artifacts that were instrumental in creating the identity of these cities within and beyond their territories. The ultimate goal of the course is to acquaint all participants with the dynamics of social, cultural, and political development of the ten Eurasian cities, their urban layout and architectural features. The course also provides an overview of basic conceptual approaches to the study of cities and ongoing urbanization in Northern and Central Eurasia. HU, SO

*** HIST 294a / MGRK 305a, The Age of Revolution** Paris Aslanidis

The course is a comparative examination of the international dimensions of several revolutions from 1776 to 1848. It aims to explore mechanisms of diffusion, shared themes, and common visions between the revolutionary upheavals in the United States, France, Haiti, South America, Greece, and Italy. How similar and how different were these episodes? Did they emerge against a common structural and societal backdrop?

Did they equally serve their ideals and liberate their people against tyranny? What was the role of women and the position of ethnic minorities in the fledgling nation-states? As the year 2021 marks the bicentennial of the Greek Revolution of 1821, special attention is given to the intricate links forged between Greek revolutionary intellectuals and their peers in Europe and other continents WR, HU

HIST 300b / CLCV 204b, Alexander the Great and the Hellenistic World Staff

The history and culture of the ancient world between the rise of Macedonian imperialism in the fourth century B.C.E. and the annexation of Egypt by Augustus in 30 B.C.E. Particular attention to Alexander, one of the most important figures in world history, and to the definition of "Hellenism." HU o Course cr

HIST 303b, Japan's Modern Revolution Daniel Botsman

A survey of Japan's transformation over the course of the nineteenth century from an isolated, traditional society on the edge of northeast Asia to a modern imperial power. Aspects of political, social, and cultural history. WR, HU o Course cr

* **HIST 304Jb / EAST 304b, Japanese Historical Documents** Daniel Botsman

Few pre-industrial societies anywhere in the world have bequeathed us a body of historical documents as varied and plentiful as those Tokugawa Japan (1600-1867). This class offers students who already have a solid command of modern Japanese an introduction to these remarkable sources, focusing particularly on what they can teach us about life in the great cities of Edo (now Tokyo), Osaka, and Kyoto—three of the largest urban centers anywhere in the pre-industrial world. Prerequisite: JAPN 140 or equivalent.

HIST 305a / LAST 100a, Introduction to Latin American Studies: History, Culture and Society Maria Aguilar

What is Latin America? The large area we refer to as Latin America is not unified by a single language, history, religion, or type of government. Nor is it unified by a shared geography or by the prevalence of a common language or ethnic group. Yet Latin America does, obviously, exist. It is a region forged from the merging of diverse cultures, historical experiences, and processes of resistance. This course provides an overview of Latin America and the Caribbean from the 16th century up to the present. While the class aims to provide students with an understanding of the region, due to time constraints, it focuses primarily on the experiences and histories of selected countries. The course introduces students to some of the most important debates about the region's history, politics, society, and culture. The course follows a chronological structure while also highlighting thematic questions. Drawing on academic readings, films, music, art, literature, testimony, oral histories, and writings from local voices the class explores the political transformation of the region, as well as topics related to ethnic and racial identity, revolution, social movements, religion, violence, military rule, democracy, transition to democracy, and migration. HU o Course cr

* **HIST 310b / EAST 403b, Law and Order in East Asia to 1800** Staff

Law is not only a practical instrument but has also shaped East Asian civilization. In implementing the governance blueprints of rulers and thinkers, law formulated the operations of East Asian empires and kingdoms, as well as their people's life in nearly all aspects. This course introduces students to the law and legal systems in premodern East Asia. Starting with early legal theories, it explores the traditional East Asian ideas of 'justice' and how the law attempted to achieve them under imperial rule and major

religious beliefs. By careful and critical reading of premodern codes and court cases, we also seek to trace the life experiences of commoners under such laws and systems. We try to understand the conflicts and tensions among the people through their frustrations in disputes, their pains in different kinds of violence, and other issues. HU

HIST 311a / CLCV 219a / NELC 111a, Egypt of the Pharaohs Staff

Egypt was among the first centralized territorial states in the world, and, because Egyptian history offers us 4000 years of institutional development and change, the focus of this course is on the long-term development of the ancient Egyptian state, its institutions, and its culture. The course introduces students to the history and culture of ancient Egypt from the rise of the central state to the early Christian period. General historical trends, the relationship of Egyptian history to other contemporary ancient cultures, and the legacy of Egypt to the “West” are also considered. At the end of the course, students have an understanding of the material culture and the historical development of ancient Egypt, and an appreciation for the relationship of the ancient sources to the construction of ancient Egyptian history. HU o Course cr

HIST 315a, State of War: Conflict, Conquest, and Consolidation in Late Imperial China Staff

This course explores the many ways in which the functions of the state are intertwined with, determine, and develop with the making of war in the Ming (1368-1644) and Qing (1644-1912) dynasties. Students explore the manifold concerns of the throne in not only conducting war, but also financing it, consolidating its gains, and handling its political consequences. The role of evolving frontier strategies, ruler-subject relations, administrative institutions, and resource dilemmas will be foregrounded in a history of warfare and its impact on the development of the late imperial state. HU o Course cr

* **HIST 317Ja, History of Infrastructure in Asia** Nurfadzilah Yahaya

This seminar looks at the history of infrastructure throughout Asia from ancient times till the 21st century. How did human beings aim to achieve sustainability through time? What were the differences between pre-colonial, colonial, and postcolonial infrastructure? The areas we delve into include urban planning, agriculture, military communications, waste management, transportation, and energy. WR, HU

HIST 321a / EAST 220a, China from Present to Past Staff

Underlying causes of current issues facing China traced back to their origins in the premodern period. Topics include economic development, corruption, environmental crises, gender, and Pacific island disputes. Selected primary-source readings in English, images, videos, and Web resources. Preference given to first years and sophomores. WR, HU o Course cr

* **HIST 328Jb, History of Indonesia** Nurfadzilah Yahaya

As a diverse archipelago of more than 10,000 islands in Southeast Asia, Indonesia has a rich and diverse history with different languages, religions as well as rich flora and fauna. We explore the history of Indonesia from its earliest beginnings to the recent times through themes such as religion, environmental history, colonialism, revolution, Cold War, and democracy. WR, HU

* **HIST 333b / NELC 320b / RLST 420b, Introduction to Syriac Christianity** Maria Doerfler

This seminar aims to introduce students to the literary, historical, and theological tradition of Syriac Christianity and the developing field of Syriac Christian studies. In

this vein, students encounter a number of the tradition's key authors; learn to locate its development in the context of different imperial cultures and religious interlocutors, including Judaism and Islam; and explore topics at the vanguard of current scholarship, including distinctive approaches to asceticism, ritual, and historiography. In addition to weekly meetings, the seminar further requires attendance for three special sessions: a visit to the Beinecke Rare Books & Manuscripts Library and its considerable Syriac manuscript holdings; a visit to the Yale University Art Gallery and its collection of relevant artefacts and coins; and an introduction to the use of digital humanities in Syriac Studies through the Yale Digital Dura-Europos Archive (YDEA). Permission of Instructor is required. HU

* **HIST 334Ja / ER&M 364a / LAST 334a, Ethnicity, Nationalism, and the Politics of Knowledge in Latin America** Marcela Echeverri Munoz

Examination of ethnicity and nationalism in Latin America through the political lens of social knowledge. Comparative analysis of the evolution of symbolic, economic, and political perspectives on indigenous peoples, peasants, and people of African descent from the nineteenth century to the present. Consideration of the links between making ethnic categories in the social sciences and in literature and the rise of political mechanisms of participation and representation that have characterized the emergence of cultural politics. WR, HU RP

HIST 342b / RLST 180b / SAST 280b, Mughal India, 1500–1800 Supriya Gandhi

Exploration of religion and the state in Mughal India, focusing on the period between 1500–1800. Topics include sacred sovereignty, orthodoxy, Sufism, vernacular literary and religious cultures, and the early colonial encounter. HU o Course cr

HIST 345b / JDST 265b / MMES 148b / RLST 202b, Jews in Muslim Lands from the Seventh to the Sixteenth Centuries Ivan Marcus

Jewish culture and society in Muslim lands from the time of the Prophet Muhammad to that of Suleiman the Magnificent. Topics include Islam and Judaism; Jerusalem as a holy site; rabbinic leadership and literature in Baghdad; Jewish courtiers, poets, and philosophers in Muslim Spain; and the Jews in the Ottoman Empire. HU o Course cr

* **HIST 345Ja / ER&M 359a, Gender and the State in Latin America and the Caribbean** Anne Eller

This seminar offers an introduction to historical constructions of gender identity and gendered polities in Latin America and the Caribbean from pre-colonial native societies into the twentieth century. We begin with an analysis of gender in the Inca empire and several lowland societies, focusing on spirituality, agriculture, and land tenure particularly. The arrival of Spanish colonialism brings tremendous and complex transformations to the societies that we consider; we analyze discourses of honor, as well as how various subjects navigated the violence and the transforming colonial state. Our readings turn to Caribbean slavery, where studies of gendered experiences of enslavement and resistance have grown considerably in recent decades. Building on these insights, we analyze the gendered experiences of abolition and inclusion into contentious new Latin American and Caribbean nations of the nineteenth century. In the twentieth century, we consider some of the most salient analyses of the growth of state power, including dictatorships, in multiple sites. Throughout we maintain an eye for principle questions about representation, reproduction, inclusion, political

consciousness, sexuality, migration, kinship, and revolutionary struggle through a gendered lens. WR, HU

HIST 355a / LAST 355a, Colonial Latin America Staff

A survey of the conquest and colonization of Latin America from pre-Columbian civilizations through the movements for independence. Emphasis on social and economic themes and the formation of identities in the context of multiracial societies.

HU o Course cr

HIST 364b / EAST 364b, Modern China Denise Ho

Today's China is one of the world's great powers, and the relationship between the United States and China is one of the most consequential of our times. Yet we cannot understand China without examining the historical context of its rise. How have the Chinese searched for modernity in the recent past? How were the dramatic changes of the late imperial period, the twentieth century, and after experienced by the Chinese people? This introductory course examines the political, social, and cultural revolutions that have shaped Chinese history since late imperial times. The emphasis of this course is on the analysis of primary sources in translation and the discussion of these texts within the context of the broader historical narrative. It assumes no prior knowledge of Chinese history. HU o Course cr

* **HIST 367a / AFST 366a / EP&E 305a / PLSC 364a, Bureaucracy in Africa:**

Revolution, Genocide, and Apartheid Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

* **HIST 370Ja, The Arabic Atlantic** Alan Mikhail and Beshouy Botros

This course begins with advent of colonialism in the Americas in order to rethink the ways in which race and religion comingled in histories of conquest, genocide, and slavery that bridge, but also to sort through the differences between the Atlantic, Caribbean and Mediterranean worlds. The course examines and conceptualizes how the Middle East *figured* in European imperial projects in the Western Hemisphere. It starts with the Papal sanction of Spanish and Portuguese colonial projects in the Americas as a continuation of their expulsion of the Moors from Iberia and proceeds to examine the histories of enslaved Black Muslims. A visit to the Beinecke Library and the Yale Archives to examine Ezra Stiles' collection of Hebrew and Arabic texts and the 'moorish' identity of the boy he enslaved brings our inquiry closer to home. Additional visits to the archives of American missionary societies active in the Middle East, which are housed at the Yale Divinity School, invites students to examine primary sources linking Yale and New Haven to the Middle East. Our class ends in 1887 with Frederick Douglass' visit to Egypt and the concurrent histories of officers in the US Confederacy who served in the Egyptian military. By examining how the Middle East came to appear in European imperial projects in the Americas, we can more critically understand how American and European colonizers, missionaries, and travelers came to appear in the Middle East. Topics include toleration and violence, women and gender,

settler colonialism, slavery, ecological and climatic changes, and the birth of financial capitalism. The study of the Mediterranean, Caribbean, and the Americas. WR, HU

HIST 371b, Ayiti and the World Anne Eller

The modern-day states of the Dominican Republic and Haiti explored in their shared historical framework and in the broader context of Caribbean, Atlantic, and global histories. Focus on issues of conflict and interconnection. Hispaniola prior to European colonialism; the island's central role in transatlantic slavery; battles for emancipation; imperial pressures of the nineteenth and twentieth centuries. HU o Course cr

* **HIST 372Jb / ER&M 342b / LAST 372b, Revolutionary Change and Cold War in Latin America** Greg Grandin

Analysis of revolutionary movements in Latin America against the backdrop of the Cold War. Critical examination of popular images and orthodox interpretations. An interdisciplinary study of the process of revolutionary change and cold war at the grassroots level. WR, HU

* **HIST 380Jb / LAST 357b, Revolutionary Mexico** Staff

The Mexican revolution erupted as a rebellion to overthrow president Porfirio Diaz after thirty years of oppressive rule, but it soon grew into a fierce conflict between warring factions to define the country's future. For certain revolutionaries, like Emiliano Zapata, this was a battle for the survival of their villages and the recovery of ancestral lands claimed by wealthy elites. For urban liberals, it was a fight to establish a democratic and secular state. Others yet- including industrial laborers, Indigenous leaders, and feminist activists- understood the revolution as a struggle against global capitalism and structures of power, like those of race and gender. As the defining event of modern Mexican history, the revolution casts a long shadow. Engaging in our own process of historical investigation, we ask: How did the revolution transform Mexican society? How do we make sense of the multiplicity of revolutionary experiences? How have Mexicans from across all sectors of society constructed their own historical narratives about the revolution, and what is at stake with their competing interpretations? WR, HU

* **HIST 388Ja, Slavery and the Slave Trade in Africa** Robert Harms

The slave trade from the African perspective. Analysis of why slavery developed in Africa and how it operated. The long-term social, political, and economic effects of the Atlantic slave trade. WR, HU

* **HIST 391a / AFST 385a / EP&E 350a / HLTH 385a / PLSC 429a, Pandemics in Africa: From the Spanish Influenza to Covid-19** Jonny Steinberg

The overarching aim of the course is to understand the unfolding Covid-19 pandemic in Africa in the context of a century of pandemics, their political and administrative management, the responses of ordinary people, and the lasting changes they wrought. The first eight meetings examine some of the best social science-literature on 20th-century African pandemics before Covid-19. From the Spanish Influenza to cholera to AIDS, to the misdiagnosis of yaws as syphilis, and tuberculosis as hereditary, the social-science literature can be assembled to ask a host of vital questions in political theory: on the limits of coercion, on the connection between political power and scientific expertise, between pandemic disease and political legitimacy, and pervasively, across all modern African epidemics, between infection and the politics of race. The remaining four meetings look at Covid-19. We chronicle the evolving responses of policymakers,

scholars, religious leaders, opposition figures, and, to the extent that we can, ordinary people. The idea is to assemble sufficient information to facilitate a real-time study of thinking and deciding in times of radical uncertainty and to examine, too, the consequences of decisions on the course of events. There are of course so many moving parts: health systems, international political economy, finance, policing, and more. We also bring guests into the classroom, among them frontline actors in the current pandemic as well as veterans of previous pandemics well placed to share provisional comparative thinking. This last dimension is especially emphasized: the current period, studied in the light of a century of epidemic disease, affording us the opportunity to see path dependencies and novelties, the old and the new. so

* **HIST 403Jb / HSHM 473b, Vaccination in Historical Perspective** Jason Schwartz
For over two centuries, vaccination has been a prominent, effective, and at times controversial component of public health activities in the United States and around the world. Despite the novelty of many aspects of contemporary vaccines and vaccination programs, they reflect a rich and often contested history that combines questions of science, medicine, public health, global health, economics, law, and ethics, among other topics. This course examines the history of vaccines and vaccination programs, with a particular focus on the 20th and 21st centuries and on the historical roots of contemporary issues in U.S. and global vaccination policy. Students gain a thorough, historically grounded understanding of the scope and design of vaccination efforts, past and present, and the interconnected social, cultural, and political issues that vaccination has raised throughout its history and continues to raise today. HU

* **HIST 404a / EDST 281a / HUMS 303a / PLSC 281a, What is the University?**

Mordechai Levy-Eichel

The University is one of the most influential – and underexamined – kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO

* **HIST 407Ja, Textual Technologies in the Early Modern Globe** Devin Fitzgerald
In this methodology seminar, students are invited to explore different aspects of textual technologies to: (1) consider the relationship between textual objects and the societies that produce them; and (2) illustrate how direct engagement with material texts found across many pre-modern and modern societies facilitates a comparative approach to

similarities and differences across world regions. Participants deepen and broaden their knowledge while also exploring individual research interests and how they fit within an inclusive vision of global history. By balancing specific knowledge and examples of issues in textual-material history, we endeavor to develop comparative and connected sensitivities that allow for formations of research questions that decenter the hegemonic narratives of the historical discipline. WR, HU

*** HIST 410Jb, Money and Its Crimes: Forgers, Schemers, and Conmen** Vanessa Ogle

For as long as it has existed, people spending, producing, earning, legislating, or saving money have been confronted with its potential for deception. We look at the evolution of money through different forms (credit systems; coins, paper money) in the pre-modern era and then move forward from the 19th century, when arguably the wider availability of paper money, now firmly established financial markets, central banking, joint stock companies, and the principle of limited liability ushered in distinctly new and modern ways of understanding and encountering money. This new landscape of money also opened the doors to new criminal enterprises: Forgers who used the advent of paper money as an opportunity to produce counterfeit bills; conmen who lured gullible fellow citizens into their get-rich-quick schemes; dubious entrepreneurs who praised endless opportunities in the emerging markets of that time and age, in Latin America and the colonial world; and men like Charles Ponzi, after whom the notorious pyramid investment fraud is named, among other examples. How did societies historically view those engaging in such criminal activity, and what kind of laws, safeguards, and investigative tools were put in place to protect people from money crimes? How did understandings of what constituted such crimes, and what, accordingly, should be made illegal, change over time? How do we view what is now often referred to as “white collar crime” today, and what does the future of money crimes look like in the age of cryptocurrencies? Over the course of the semester, we combine different historical perspectives on these topics and questions. WR, HU

*** HIST 413a / AMST 449a / FILM 447a, The Historical Documentary** Charles Musser

This course looks at the historical documentary as a method for carrying out historical work in the public humanities. It investigates the evolving discourse and resonances within such topics as the Vietnam War, the Holocaust and African American history. It is concerned with their relationship of documentary to traditional scholarly written histories as well as the history of the genre and what is often called the “archival turn.” WR, HU

HIST 418b, The History of Money Vanessa Ogle

This is a lecture course on the history of money from the Middle Ages to the present. The geographical focus lies on Europe and North America, with occasional forays into other world regions. Students acquire in-depth knowledge of the evolution of money in its different forms. The course shows that the way we understand money today, and the forms in which money comes, are extremely recent developments and that for vast stretches of history, people used very different moneys. From cocoa beans to leather tokens to slips of paper that we would not recognize as money today, money existed in extremely diverse guises. The course can therefore help us see that anything we today might assume to be natural or inevitable about money and monetary politics, might in fact not be so given money’s colorful and mixed history. HU o Course cr

* **HIST 418Jb / WGSS 297b, Gender Expression Before Modernity** Igor De Souza

What are the historical forms of gender non-conformity? This course investigates expressions of gender that were considered non-conforming within their historical contexts. Our point of departure is the idea that gender constitutes a “useful category of historical analysis” (Joan Scott). In this course we ask how deviant gender expression can be a category of historical analysis. How do we write history from the perspective of gender fluidity, non-binarity, and gender transgression? How can this history give us the tools to critique regnant norms of gender expression, then and now? How does this historical approach relate to trans* and non-binary people & movements today? The course is historically wide-ranging, from Antiquity to the Early Modern period, and geographically diverse, including Europe, the Middle East, and the colonial Americas. The breadth of contexts enable us to consider broad patterns, continuities, and discontinuities. At the same time, we discuss the specificities of particular contexts, emphasizing the connection between gender fluidity/non-conformity, on the one hand, and local cultural norms around gender and sex, on the other. We investigate intellectual and cultural trends, as well as the lives of gender fluid/non-conforming individuals. We analyze sources drawn from law, medicine, religion, philosophy, visual arts & literature, biographies, and memoirs. All readings are in English translation. No prior background is required. However, it will be helpful to have taken either WGSS 291/HIST 287J or WGSS 306 before or in concurrence with this course. HU

* **HIST 420Jb / URBN 370, Urban Laboratories: Early Modern Citymaking** Staff

This interdisciplinary seminar explores the diverse forms of urbanism that emerged in Europe, the Americas, Africa, and Asia before the modern era. Course readings probe the ideas of writers, travellers, politicians, and social reformers on topics including commerce, migration, policing, citizenship, and sexuality. The aspirations and setbacks that emerge from these sources offer a long timescale of evidence of the different ways in which urban societies operated and structured day-to-day life. At the end of term, we look at urban environments of our time. In doing so we articulate comparative perspectives, identifying how today’s cities have mirrored, advanced, and built upon the actions, designs, and errors that early modern cities gave rise to. WR, HU

* **HIST 426Jb / GLBL 398b, Yale and the World: Global Power, Local History** David Engerman

This course uses moments in the history of Yale University to shed light on the forms, functions, and trajectory of U.S. global power from the late 19th century through the early 21st century. Key episodes include missionary work in East Asia, scientific expeditions in South America, mobilization for war and Cold War, and the internationalization of the student body. Students investigate these episodes by reading scholarly work as well as archival sources, and through discussions with Yale faculty and staff. WR, HU

* **HIST 435Ja, Colonial Cities: A Global Seminar** Hannah Shepherd

Cities of empire, both imperial capitals and colonial outposts, played crucial roles in the reinforcement of racial hierarchies, the flow of goods, people, and capital, and the representation of imperial power. This course looks at histories of cities around the world in the age of empire, and how they were shaped by these forces. Students gain visual analysis and mapping skills, and learn about the history and theory of imperial, colonial and postcolonial cities, and how they still inform debates over the urban environment today. WR, HU

* **HIST 459a / EVST 228a / HUMS 228a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

* **HIST 467Ja / HSHM 422a, Cartography, Territory, and Identity** Bill Rankin
Exploration of how maps shape assumptions about territory, land, sovereignty, and identity. The relationship between scientific cartography and conquest, the geography of statecraft, religious cartographies, encounters between Western and non-Western cultures, and reactions to cartographic objectivity. Students make their own maps. No previous experience in cartography or graphic design required. WR, HU

* **HIST 482Jb / GLBL 342b / PLSC 321b, Studies in Grand Strategy I** Arne Westad, Jing Tsu, and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. The spring term focuses on key moments in history that illustrate strategic thinking in action. During the summer, students undertake research projects or internships analyzing strategic problems or aspects of strategy. The following fall, students put their ideas into action by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. HU, SO

* **HIST 483Ja / GLBL 344a / PLSC 161a, Studies in Grand Strategy II** Arne Westad, Jing Tsu, and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. During the fall term, students put into action the ideas studied in the spring term by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Prerequisite: PLSC 321. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. SO

HIST 485a / AMST 215a / HSHM 217a / HUMS 219a, Biomedical Futures and Michael Crichton's Monsters Staff

What forms of life have been produced by modern science? The literal life-changing technologies that began to emerge after the Second World War also provoked new anxieties. They expressed themselves in the speculative fiction of Michael Crichton in terms of monsters: the virus in *The Andromeda Strain*, the androids in *Westworld*, the velociraptors of *Jurassic Park*, and even the patients maimed by gunshot wounds in *ER*. Crichton wrote thrilling stories that also asked his readers to consider what monsters humans could make if they didn't stop to consider whether or not they should. This

course examines the emergence of modern life science to consider what it would take to produce more life-sustaining futures. HU, SO o Course cr

*** HIST 494a or b, Individual Writing Tutorial** Staff

For students who wish, under the supervision of a member of the faculty, to investigate an area of history not covered by regular departmental offerings. The course may be used for research or for directed reading. It is normally taken only once. The emphasis of the tutorial is on writing a long essay or several short ones. To apply for admission, a student should present the following materials to the director of undergraduate studies on the Friday before schedules are due: a prospectus of the work proposed, a bibliography, and a letter of support from a member of the History department faculty who will direct the tutorial. A form to simplify this process is available from the office of the director of undergraduate studies.

*** HIST 495a or b and HIST 496a or b, The Senior Essay** Hussein Fancy

All senior History majors should attend the mandatory senior essay meeting in early September at a time and location to be announced in the online Senior Essay Handbook. The senior essay is a required one- or two-term independent research project conducted under the guidance of a faculty adviser. As a significant work of primary-source research, it serves as the capstone project of the History major. Students writing the one-term senior essay enroll in HIST 497 (see description), not HIST 495 and 496. The two-term essay takes the form of a substantial article, not longer than 12,500 words (approximately forty to fifty double-spaced typewritten pages). This is a maximum limit; there is no minimum requirement. Length will vary according to the topic and the historical techniques employed. Students writing the two-term senior essay who expect to graduate in May enroll in HIST 495 during the fall term and complete their essays in HIST 496 in the spring term. December graduates enroll in HIST 495 in the spring term and complete their essays in HIST 496 during the following fall term; students planning to begin their essay in the spring term should notify the senior essay director by early December. Each student majoring in History must present a completed Statement of Intention, signed by a department member who has agreed to serve as adviser, to the History Department Undergraduate Registrar by the dates indicated in the Senior Essay Handbook. Blank statement forms are available from the History Undergraduate Registrar and in the Senior Essay handbook. Students enrolled in HIST 495 submit to the administrator in 237 HGS a two-to-three-page analysis of a single primary source, a draft bibliographic essay, and at least ten pages of the essay by the deadlines listed in the Senior Essay Handbook. Those who meet these requirements receive a temporary grade of SAT for the fall term, which will be changed to the grade received by the essay upon its completion. Failure to meet any requirement may result in the student's being asked to withdraw from HIST 495. Students enrolled in HIST 496 must submit a completed essay to 211 HGS no later than 5 p.m. on the dates indicated in the Senior Essay Handbook. Essays submitted after 5 p.m. will be considered as having been turned in on the following day. If the essay is submitted late without an excuse from the student's residential college dean, the penalty is one letter grade for the first day and one-half letter grade for each of the next two days past the deadline. No essay that would otherwise pass will be failed because it is late, but late essays will not be considered for departmental or Yale College prizes. All senior departmental essays will be judged by members of the faculty other than the adviser.

In order to graduate from Yale College, a student majoring in History must achieve a passing grade on the departmental essay.

*** HIST 497a or b, One-Term Senior Essay** Hussein Fancy

All senior History majors should attend the mandatory senior essay meeting in early September at a time and location to be announced in the online Senior Essay Handbook. The senior essay is a required one- or two-term independent research project conducted under the guidance of a faculty adviser. As a significant work of primary-source research, it serves as the capstone project of the History major. Seniors writing a two-term senior essay do not register for HIST 497; instead, they register for HIST 495 and HIST 496 (see description). History majors may choose to write a one-term independent senior essay in the first term of their senior year and register for HIST 497; however, students who choose the one-term senior essay option are not eligible for Distinction in the Major. The one-term essay must include a substantial research paper of no more than 6,250 words (approximately twenty-five pages) based on primary sources, along with a bibliographic essay and bibliography. Seniors enroll during the fall term of senior year; only History majors graduating in December may enroll during the spring term (or seventh term of enrollment). In rare circumstances, with the permission of the adviser and the Senior Essay Director, a student enrolled in HIST 497 during the fall term may withdraw from the course according to Yale College regulations on course withdrawal and enroll in the spring term. Each student enrolled in HIST 497 must present a completed Statement of Intention, signed by a department member who has agreed to serve as adviser, to the History Department Undergraduate Registrar by the dates indicated in the Senior Essay Handbook. Blank statement forms are available from the History Undergraduate Registrar and in the Senior Essay Handbook, available on the History department Web site. Additional details about the senior essay, including the submission deadlines are included in the Senior Essay Handbook. Essays submitted after 5 p.m. on the due date will be considered as having been turned in on the following day. If the essay is submitted late without an excuse from the student's residential college dean, the penalty is one letter grade for the first day and one-half letter grade for each of the next two days past the deadline. No essay that would otherwise pass will be failed because it is late. All senior departmental essays will be judged by members of the faculty other than the adviser. In order to graduate from Yale College, a student majoring in History must achieve a passing grade on the departmental essay. Permission of the departmental Senior Essay Director and of the student's faculty adviser is required for enrollment.

History of Art (HSAR)

*** HSAR 016a / EAST 016a, Chinese Painting and Culture** Quincy Ngan

This course focuses on important works of Chinese painting and major painters from the fourth century CE to the twentieth century. Through close readings of the pictorial contents and production contexts of such works of art, this course investigates the works' formats, meanings, and innovations from social, historical, and art-historical perspectives. In this course, students become familiar with the traditional Chinese world and acquire the knowledge necessary to be an informed viewer of Chinese painting. Discussions of religion, folkloric beliefs, literature, relationships between men and women, the worship of mountains, the laments of scholars, and the tastes of emperors and wealthy merchants also allow students to understand the cultural

roots of contemporary China. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HSAR 019a, Matters of Color/Color Matters** Jae Rossman and Cynthia Roman
Color is a powerful element of visual representation. It can convey symbolic meaning, descriptive content, aesthetic values, and cultural connotations. This seminar seeks to explore practical, aesthetic, and conceptual facets of “color.” A series of weekly modules are structured around the strengths of the rich special collections at Yale libraries and museums. Students are introduced to Yale librarians, curators, and conservators whose expertise will be an invaluable resource throughout their undergraduate years. The course incorporates hands-on sessions in keeping with making as a learning tool. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HSAR 021a, Twelve Works of Western Art** Carol Armstrong
This course consists of close encounters with twelve works of art from the Western tradition. Instead of a Renaissance-to-modern survey, we delve deeply into each of the twelve works that form our “canon,” chosen both for their extraordinariness and for their capacity to represent different times and places, as well as different media and themes. We ask what makes these works extraordinary and/or representative, and debate whether or not they properly belong in our “canon.” We also address the changing notions of what art is and what functions it fulfills. Each of these twelve works of art are looked at in relation to relevant art objects in Yale’s collections (and in the Metropolitan Museum in New York), as well as corollary works of poetry, literature and film. This is done through readings, seminar discussions, presentations in the galleries, and three research papers. By the end of the semester, each of the students in the class will form their own canon of six to twelve works, and argue for it according to their own values, reasoning and judgment. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

HSAR 110a / ARCG 110a, Introduction to the History of Art: Global Decorative Arts
Staff

Global history of the decorative arts from antiquity to the present. The materials and techniques of ceramics, textiles, metals, furniture, and glass. Consideration of forms, imagery, decoration, and workmanship. Themes linking geography and time, such as trade and exchange, simulation, identity, and symbolic value. HU o Course cr

HSAR 219a / AMST 197a / ARCH 280a / URBN 280a, American Architecture and Urbanism Elihu Rubin

Introduction to the study of buildings, architects, architectural styles, and urban landscapes, viewed in their economic, political, social, and cultural contexts, from precolonial times to the present. Topics include: public and private investment in the built environment; the history of housing in America; the organization of architectural practice; race, gender, ethnicity and the right to the city; the social and political nature of city building; and the transnational nature of American architecture. HU o Course cr

HSAR 237b / EAST 237b, Arts of China Quincy Ngan

Arts of China is a window to the nation’s history, culture, society, and aesthetics. This course introduces the visual arts of China from the prehistoric period to the twentieth century. We look at the archaeological findings (including pottery, jade, and bronze

vessels) as well as ancestor worship and belief in posthumous souls and immortal mountains. We look at the art and architecture inspired by Buddhism, Taoism, and Confucianism. We investigate the place of Chinese painting and calligraphy in court and elite cultures and explore how these arts intertwine with politics, printing culture, and popular culture. Lastly, we investigate the decorative arts, like ceramics, textiles, and furniture, as well as the art and architecture that reflect foreign tastes. HU

o Course cr

HSAR 240b, London Art Capital: Black Death to Brexit Timothy Barringer

Today London is a great art city—a cosmopolitan center for the making, display, and collecting of works of art. How did that come to be? This course answers the question through an intense engagement with the rich collections of the Yale Center for British Art, offering an introduction to British Art across six centuries and to the lively debates it generates. The course links the development of art and the art market with the origins and progression of capitalism. It traces London's artistic and architectural development from medieval origins through the courtly spectacle of Tudor and Stuart eras to the emergence of a recognizably modern economy and society around 1750, the time of William Hogarth. After 1800, Londoners William Blake and JMW Turner, and their Victorian successors, vividly chronicled the transformation of the industrial and imperial city. From 1910 British art entered a complex relationship with European modernism epitomized in the work of sculptor Barbara Hepworth. London was shattered by bombing during the Blitz: from the ruins emerged Pop Art, followed by Op-Art, led by Bridget Riley. By the 1990s the prominence of artists of color such as Yinka Shonibare prefigured the dynamic and cosmopolitan art scene of the present day. After Brexit, after Covid, what is the future for British art and for London? HU

o Course cr

HSAR 243a / ARCG 243a / CLCV 160a, Greek Art and Architecture Milette Gaifman
Monuments of Greek art and architecture from the late Geometric period (c. 760 B.C.) to Alexander the Great (c. 323 B.C.). Emphasis on social and historical contexts. HU

HSAR 252a, The Mexican Codices: Art and Knowledge Allison Caplan

This lecture course examines painted manuscripts (or codices) among the Nahua, Mixtec, and Maya people of Mexico, from the 15th through 16th centuries. We explore the Mexican codices as carriers of social, historical, and divinatory knowledge; the role of painted almanacs, histories, and maps in Mesoamerican thought and societies; and how Indigenous and European book traditions shaped the colonial encounter. HU

HSAR 257b, Modernism's Social Life Joanna Fiduccia

What was the social life of modernism? What might it still be today? This course is an introduction to European and North American modern art through its social networks and structures: gathering spaces, salons, schools, and stomping grounds, along with political solidarities and coalitions. We meet key figures from the history of modernism and the avant-garde (artists such as Pablo Picasso, Henri Matisse, Sophie Taeuber-Arp, Marcel Duchamp, Augusta Savage, and Isamu Noguchi) in the context of their pedagogical, political, and intimate associations. Along the way, lectures introduce a fresh cast of characters whose vision, labor, or material support made possible more familiar narratives of art history. We focus on artworks that ask us to think anew about modern art's collective purpose as well as its communal pleasures. HU o Course cr

*** HSAR 266a / ARCH 271a / MMES 126a / SAST 266a, Introduction to Islamic Architecture** Staff

Introduction to the architecture of the Islamic world from the seventh century to the present, encompassing regions of Asia, North Africa, and Europe. A variety of sources and media, from architecture to urbanism and from travelogues to paintings, are used in an attempt to understand the diversity and richness of Islamic architecture. Besides traditional media, the class will make use of virtual tours of architectural monuments as well as artifacts at the Yale University Art Gallery, accessed virtually. HU o Course cr

HSAR 283b, Leonardo, Michelangelo, Raphael Nicola Suthor

This lecture course is an introduction to High Renaissance art with emphasis on painting and sculpture. The story of its rise is told through the artistic development of the three main protagonists: Leonardo, Michelangelo, and Raphael. Their life-long competition with one another opened up three different avenues for reaching excellence in the visual arts. Each course meeting focuses on one work (or two) in order to unfold in detail their particular visual language and explain their iconic status in art history.

HU

HSAR 293a, Baroque Rome: Painting, Sculpture, Architecture Nicola Suthor

Analyses of masterpieces by prominent artists in baroque Rome. Caravaggio's "baroque" differentiated from the path of the classicist artists. Works by Gian Lorenzo Bernini, who dominated the art scene in Rome as sculptor and architect half a century after Caravaggio's death. HU

HSAR 312b / ARCH 312b, Modern Architecture in a Global Context, 1750-present

Craig Buckley

Architects, movements, and buildings central to the development of modern architecture from the mid eighteenth century through to the present. Common threads and differing conceptions of modern architecture around the globe. The relationship of architecture to urban transformation; the formulation of new typologies; architects' responses to new technologies and materials; changes in regimes of representation and media. Architects include Claude Nicolas Ledoux, Giovanni Battista Piranesi, John Soane, Frank Lloyd Wright, Le Corbusier, Ludwig Mies van der Rohe, Lina Bo Bardi, Louis Kahn, and Kenzo Tange. HU o Course cr

HSAR 326a / ARCH 260a, History of Architecture to 1750 Staff

Introduction to the history of architecture from antiquity to the dawn of the Enlightenment, focusing on narratives that continue to inform the present. The course begins in Africa and Mesopotamia, follows routes from the Mediterranean into Asia and back to Rome, Byzantium, and the Middle East, and then circulates back to mediaeval Europe, before juxtaposing the indigenous structures of Africa and America with the increasingly global fabrications of the Renaissance and Baroque. Emphasis on challenging preconceptions, developing visual intelligence, and learning to read architecture as a story that can both register and transcend place and time, embodying ideas within material structures that survive across the centuries in often unexpected ways. HU o Course cr

*** HSAR 350a / HUMS 425a / LITR 399a / RLST 431a, Reality and the Realistic**
Noreen Khawaja and Joanna Fiduccia

A multidisciplinary exploration of the concept of reality in Euro-American culture. What do we mean when we say something is "real" or "realistic?" From what is it

being differentiated—the imaginary, the surreal, the speculative? Can we approach a meaningful concept of the unreal? This course wagers that representational norms do not simply reflect existing notions of reality; they also shape our idea of reality itself. We study the dynamics of realism and its counterparts across a range of examples from modern art, literature, philosophy, and religion. Readings may include: Aimé Césaire, Mircea Eliade, Karen Barad, Gustave Flaubert, Sigmund Freud, Renee Gladman, Saidiya Hartman, Arthur Schopenhauer. Our goal is to understand how practices of representation reveal something about our understanding of reality, shedding light on the ways we use this most basic, yet most elusive concept. HU

* **HSAR 351b, Making, Picturing, and Marking Space: American Art and Material Culture in the Long 19th Century** Edward Cooke

This introductory course to American material culture and art in the long nineteenth century takes “space” as its defining principle. From the ratification of the U.S. Constitution in 1788 to the outbreak of the First World War, the long nineteenth century was a formative and tumultuous period during which the nation consolidated its continental control and fashioned itself as an imperial power. Manifest destiny, expansionism, revolutions in transportation, and debates over land, labor, race, and national identity are defining features of the period. Progressing thematically and chronologically, this course considers how American artists and craftspeople navigated, contributed, and responded to these spatial politics. The class explores how the study of visual and material cultures offers nuanced insight into how the space of the nation is affirmed, contested, and negotiated. How and for whom is “space” *made*, and at whose expense? How do *things* emerge from, travel across, and define spaces? What role do artists and craftspeople play in transforming space into *place*? HU

* **HSAR 352b / EAST 406b, Introduction to Central Asian Art and Architecture** Staff
Overview of the art and architecture of Central Asia including Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, and Tajikistan, in addition to Afghanistan and Xinjiang, from the Late Antiquity to the modern day. Examination of artistic, architectural-urban transformations as a reflection of the broader societal and cultural change. Through readings, we challenge ourselves 1) to reconsider some of the prevailing understandings of Central Asian history/art & architectural history and 2) to perceive the built environment as an artifact that uncovers secrets and affirms political, social, cultural, and economic aspects of the human past. Throughout, we focus on interactions across the Eurasian continent among Sogdians, Turks, Persians, Arabs, Chinese, Mongolian nomads, and Russians during the last millennium and a half, to understand how these cultures shaped Central Asian urban landscapes, art, and architectural styles. Previous knowledge of Central Asian history is helpful but by no means necessary. Previous knowledge of Art & Architectural history is helpful but by no means necessary. HU

HSAR 364b, Survey of Japanese Art II Mimi Yiengpruksawan

Continuation of HSAR 363a, covering the fourteenth through the twentieth centuries. HU

* **HSAR 384a, Curating the Pre-Raphaelites** Timothy Barringer

The course examines the first British artistic avant-garde, the Pre-Raphaelite Brotherhood. It is timed to coincide with a major loan exhibition, *The Rossettis*, at the Delaware Art Museum and includes a trip to view the exhibition. The purpose of the course is to examine the visual and literary works of the Pre-Raphaelite Brotherhood, their associates and followers in the context of the cultural context of Victorian Britain,

and to engage with and critique changing curatorial approaches to this work in the museum sector. New literature, published within the last few years, has identified Pre-Raphaelitism as a major avant-garde movement of the mid-nineteenth century, the approach that informed the exhibition *Pre-Raphaelites: Victorian Avant-Garde* at Tate Britain in 2012. New thinking about gender has brought women and queer artists, previously overlooked, to the fore. Having learned how to create catalogue entries, labels, and room texts for a museum display, students produce their own exhibition proposal on an aspect of the Pre-Raphaelites as their final project for the class. Permission of the instructor is required. HU

* **HSAR 398a, Making Monsters in the Atlantic World** Cecile Fromont

This seminar introduces students to art historical methodologies through the charged site of the “monster” in the Atlantic World. How and why are monsters made? What can visualizations of monsters tell us about how Otherness is constructed, contested, and critiqued? What do monsters tell us about human oppression, agency, and cultural encounters? Analyzing visual and textual primary sources as well as different theoretical approaches, students leave the course with sharper visual analysis skills, a critical awareness of the many-sided discourses on monstrosity, and a deeper understanding of Atlantic history. WR, HU

* **HSAR 401a or b, Critical Approaches to Art History** Staff

A wide-ranging introduction to the methods of the art historian and the history of the discipline. Themes include connoisseurship, iconography, formalism, and selected methodologies informed by contemporary theory. WR, HU

* **HSAR 406b, Photography and Sculpture in Modernity** Joanna Fiduccia

Photography and sculpture are peculiar, yet consistent bedfellows in the modern world. This course pursues the history of their entanglements through concerns central to art and visual culture in the modern era up to the present day: reproduction and mass-production; testimony and embodiment; authorship and appropriation; intimacy, sexuality, and privacy; race and representation; cultures of pedagogy and display; and fragmented and virtual images of the body. The seminar meets in Yale’s museums and special collections, foregrounding close analysis of primary materials and works of art. HU

* **HSAR 415a / EAST 411a / WGSS 412a, Women and Art in Premodern East Asia**
Staff

For over a thousand years, women in East Asia profoundly influenced the development of the visual arts, yet their formidable presence remains largely hidden. This seminar explores the critical roles women played as patrons, artists, and collectors of the arts in China, Korea, and Japan. We cover periods from the sixth through the nineteenth centuries and discuss a wide array of mediums including bamboo paintings, bijinga woodblock prints, bronze Buddhist sculptures, bojagi textiles, and even embroidered lotus shoes. This seminar focuses particularly on art objects made by anonymous women as a means to rethink and problematize the traditionally elite and male-dominated art historical canon. We also contextualize artistic production in light of emergent theorizations and readings on femininity, feminism, and the sexual politics of representation. Major themes of inquiry include subjectivity and intentionality; representations of women and the male gaze; and postcolonial definitions of female agency. No prior knowledge of East Asian art history is required or assumed. HU

* **HSAR 418a or b, Seeing, Describing, and Interpreting** Nicola Suthor

Study of select works of art from the period between 1500 and 1800, all on display in the Yale Art Gallery. Required readings of articles and theoretical text are meant to encourage discussion in front of the artwork. The importance of both visual and written information to better understand how artists communicate messages and engage imagination. All sessions held at the Yale Art Gallery. HU

* **HSAR 426a, American Silver** Staff

Objects made of silver as important markers of taste and social position in America from the beginning of colonial settlement to the present. The progression of styles, associated technologies, uses, political meanings, and cultural contexts of American silver. Use of objects from the American silver collection of the Yale University Art Gallery. HU

* **HSAR 427a / EAST 427a, Chinese Skin Problems** Quincy Ngan

This seminar uses artwork as a means of understanding the various skin problems faced by contemporary Chinese people. Divided into four modules, this seminar first traces how the “ideal skin” as a complex trope of desire, superficiality, and deception has evolved over time through the ghost story, *Painted Skin (Huapi)*, and its countless spin-offs. Second, the course explores how artists have overcome a variety of social distances and barriers through touch; we look at artworks that highlight the healing power and erotic associations of cleansing, massaging, and moisturizing the skin. Third, we explore the relationship between feminism and gender stereotypes through artworks and performances that involve skincare, makeup and plastic surgery. Fourth, the course investigates the dynamics between “Chineseness,” colorism, and racial tensions through the artworks produced by Chinese-American and diasporic artists. Each module is comprised of one meeting focusing on theoretical frameworks and two meetings focusing on individual artists and close analysis of artworks. Readings include Cathy Park Hong’s *Minor Feelings*, Nikki Khanna’s *Whiter*, and Leta Hong Fincher’s *Leftover Women*. HU

* **HSAR 440a, Issues in Nineteenth-Century Sculpture** Christina Ferando

Survey of nineteenth-century European and American sculpture using concrete visual examples from Italy, France, England, and the United States to examine the formal structure of sculpture and contextualize the social and political circumstances of its production and reception. Focus on representation of the human figure and examination of issues of idealism and naturalism, as well controversies surrounding the use of color and gender/class signifiers. Use of collections in the Yale University Art Gallery and the Yale Center for British Art. Some familiarity with art history is helpful. HU

* **HSAR 460a / ENGL 419a / HUMS 185a, Writing about Contemporary Figurative Art** Margaret Spillane

A workshop on journalistic strategies for looking at and writing about contemporary paintings of the human figure. Practitioners and theorists of figurative painting; controversies, partisans, and opponents. Includes field trips to museums and galleries in New York City. Formerly ENGL 247. WR, HU

* **HSAR 463a / ER&M 378a, Material Histories of Photography** Jennifer Raab

While we often see photographs mediated through screens, they are singular objects with specific material histories. Through Yale’s collections, this course explores these

histories from the nineteenth century to the present and how they intersect with constructions of class, race, gender, and the non-human world; the ongoing processes of settler-colonialism; and both modern environmental conservation and ecological crisis. HU

* **HSAR 466a, The Technical Examination of Art** Irma Passeri and Anne Gunnison
The primary aim of this course is to develop the skills to closely examine the physical nature of a range of art objects in order to recognize the materials and techniques used at the time of their creation and their layered histories (e.g. use, display, degradation, restoration, and conservation). Understanding techniques and materials can assist in both placing the object in its broader historical context and, in turn, informing that historical context. Students come away from this course with an appreciation for close looking to understand, question, and interpret materials and technique. In seminars taught by conservators from the Art Gallery (YUAG) and other institutions, students examine paintings and objects selected from the Gallery's collections and made available for examination in the Gallery's classrooms, learning about artists materials from ancient to modern. Appropriate methods of examination including microscopy, ultraviolet radiation, infrared imaging, x-radiography, and non-destructive methods of analysis are introduced by instructors, as well as scientists from the Institute for the Preservation of Cultural Heritage (IPCH).

* **HSAR 476b, Energy Cultures of Modern Architecture** Craig Buckley
It is estimated that the construction and operation of buildings accounts for nearly 40% of carbon emissions globally. If a radical decarbonization of architectural practice stands as the discipline's central challenge today, this calls not only for new solutions, but for different engagement with architecture's history. This discussion seminar reinterprets histories of modern architecture through the concept of "energy cultures." An energy culture (Sheller, 2014; Szeemann and Diamanti, 2019) can be defined as the specific assemblage of fuel, matter, practice, labor, and meaning that have informed architecture's conceptualization and construction. In contrast to approaches that stress quantitative, technical, and instrumental approaches to energy accounting and energy efficiency, this course looks at how different representations, concepts, and behaviors emerged in response to historic shifts in energy production and consumption. The first portion of the course surveys a range of historical approaches to concepts of energy and environmental justice within and adjacent to architecture. The bulk of the course then turns to case studies, examining particular buildings and projects in order to develop new interpretations and questions about these monuments based on an energy cultures approach. HU

* **HSAR 490b / FILM 320b, Close Analysis of Film** Oksana Chefranova
Close study of a range of major films from a variety of periods and places. Apart from developing tools for the close analysis of film, we consider such topics as genre and mode; the role of sound; cinema as a structure of gazes; remakes and adaptations; approaches to realism; narration and resistance to narration; film in relation to other moving image media; and the relationship of close analysis to historical contextualization and interpretation more generally. Prerequisite: FILM 150. WR, HU

* **HSAR 499a or b, The Senior Essay** Staff
Preparation of a research paper (25-30 pages in length) on a topic of the student's choice, under the direction of a qualified instructor, to be written in the fall or spring term of the senior year. In order to enroll in HSAR 499, the student must submit a

project statement on the date that their course schedule is finalized during the term that they plan to undertake the essay. The statement, which should include the essay title and a brief description of the subject to be treated, must be signed by the student's adviser and submitted to the DUS. All subsequent deadlines are also strict, including for the project outline and bibliography, complete essay draft, and the final essay itself. Failure to comply with any deadline will be penalized by a lower final grade, and no late essay will be considered for a prize in the department. Senior essay workshops meet periodically throughout the term and are also mandatory. Permission may be given to write a two-term essay after consultation with the student's adviser and the DUS. Only those who have begun to do advanced work in a given area and whose project is considered to be of exceptional promise are eligible. The requirements for the one-term senior essay apply to the two-term essay, except that the essay should be 50-60 pages in length.

History of Science, Medicine, and Public Health (HSHM)

*** HSHM 005a / HIST 006a, Medicine and Society in American History** Rebecca Tannenbaum

Disease and healing in American history from colonial times to the present. The changing role of the physician, alternative healers and therapies, and the social impact of epidemics from smallpox to AIDS. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

HSHM 207b / AMST 236b / EVST 318b / HIST 199b, American Energy History Paul Sabin

The history of energy in the United States from early hydropower and coal to present-day hydraulic fracturing, deepwater oil, wind, and solar. Topics include energy transitions and technological change; energy and democracy; environmental justice and public health; corporate power and monopoly control; electricity and popular culture; labor struggles; the global quest for oil; changing national energy policies; the climate crisis. WR, HU o Course cr

HSHM 215a / HIST 140a, Public Health in America, 1793 to the Present Staff

A survey of public health in America from the yellow fever epidemic of 1793 to AIDS and breast cancer activism at the end of the past century. Focusing on medicine and the state, topics include quarantines, failures and successes of medical and social welfare, the experiences of healers and patients, and organized medicine and its critics. HU o Course cr

HSHM 217a / AMST 215a / HIST 485a / HUMS 219a, Biomedical Futures and Michael Crichton's Monsters Staff

What forms of life have been produced by modern science? The literal life-changing technologies that began to emerge after the Second World War also provoked new anxieties. They expressed themselves in the speculative fiction of Michael Crichton in terms of monsters: the virus in *The Andromeda Strain*, the androids in *Westworld*, the velociraptors of *Jurassic Park*, and even the patients maimed by gunshot wounds in *ER*. Crichton wrote thrilling stories that also asked his readers to consider what monsters humans could make if they didn't stop to consider whether or not they should. This

course examines the emergence of modern life science to consider what it would take to produce more life-sustaining futures. HU, SO o Course cr

HSHM 226b, The Global Scientific Revolution Ivano Dal Prete

The material, political, cultural, and social transformations that underpinned the rise of modern science between the 14th and 18th century, considered in global context. Topics include artisanal practices and the empirical exploration of nature; global networks of knowledge and trade, and colonial science; figurative arts and the emersion of a visual language of anatomy, astronomy, and natural history. HU o Course cr

* **HSHM 406b / HIST 150Jb, Healthcare for the Urban Underserved** Sakena Abedin
Exploration of the institutions, movements, and policies that have attempted to provide healthcare for the urban underserved in America from the late nineteenth century to the present, with emphasis on the ideas (about health, cities, neighborhoods, poverty, race, gender, difference, etc) that shaped them. Topics include hospitals, health centers, public health programs, the medical civil rights movement, the women's health movement, and national healthcare policies such as Medicare and Medicaid. WR, HU

* **HSHM 407b, Collecting Before the Museum** Paola Bertucci

A history of museums before the emergence of the modern museum. Focus on: cabinets of curiosities and Wunderkammern, anatomical theaters and apothecaries' shops, alchemical workshops and theaters of machines, collections of monsters, rarities, and exotic specimens. WR, HU

* **HSHM 409b / HIST 197Jb, Marriage and Medicine in Modern America** Kelly O'Donnell

This seminar explores histories of health, gender, and sexuality, by focusing on the intertwining of two institutions that have fundamentally shaped our culture: medicine and marriage. It uses marriage as a lens for viewing the historical and social transformations of the American medical profession, as well as to examine the medicalization of intimate relationships in the broader society. Weekly readings cover topics such as: eugenics, LGBTQ marriage and adoption, disability rights, sexuality and reproduction, sex education, health activism, the changing gender composition of the health professions, and the reform of medical education and training. Students also analyze a variety of primary sources, ranging from scientific studies and medical advice literature to popular magazines and romantic comedy films. WR, HU

* **HSHM 413a / AFST 465a / ANTH 468a / URBN 400 / URBN 442a, Infrastructures of Empire: Control and (In)security in the Global South** Leslie Gross-Wyrtzen

This advanced seminar examines the role that infrastructure plays in producing uneven geographies of power historically and in the “colonial present” (Gregory 2006). After defining terms and exploring the ways that infrastructure has been conceptualized and studied, we analyze how different types of infrastructure (energy, roads, people, and so on) constitute the material and social world of empire. At the same time, infrastructure is not an uncontested arena: it often serves as a key site of political struggle or even enters the fray as an unruly actor itself, thus conditioning possibilities for anti-imperial and decolonial practice. The geographic focus of this course is the African continent, but we explore comparative cases in other regions of the majority and minority world.

SO

* **HSHM 420a, Senior Project Workshop** Kelly O'Donnell

A research workshop for seniors in the HSHM major, intended to move students toward the successful completion of their senior projects and to provide a community for support and for facilitated peer review. Meets periodically throughout the semester for students to discuss stages of the research process, discuss common challenges and practical strategies for addressing them, and to collaboratively support each others' work. The workshop events are structured around the schedule for the fall-to-spring two-term senior project, but students writing one-term projects or spring-to-fall projects also benefit from them, and there will be at least one peer review session to support their key deadlines each semester too. Students must be seniors in the HSHM major and must be signed up for HSHM 490, 491, or 492 to take this course.
½ Course cr

* **HSHM 422a / HIST 467Ja, Cartography, Territory, and Identity** Bill Rankin

Exploration of how maps shape assumptions about territory, land, sovereignty, and identity. The relationship between scientific cartography and conquest, the geography of statecraft, religious cartographies, encounters between Western and non-Western cultures, and reactions to cartographic objectivity. Students make their own maps. No previous experience in cartography or graphic design required. WR, HU

* **HSHM 426a / HIST 111Ja, Race and Mental Health in New Haven** Marco Ramos

Recent scholarship in the humanities has critically examined the violence that the mental health care system has inflicted on marginalized communities in the United States. This advanced research seminar explores race, mental health, and harm through the local history of New Haven. We interrogate the past and present of Yale University's relationship to the surrounding community by unearthing the history of "community mental health" at Yale in the 1960s. In particular, the seminar is built around a newly discovered archive in the Connecticut Mental Health Center (CMHC), an institution that was developed as an urban renewal project that displaced citizens from their homes and jobs in the Hill Neighborhood. The archive details, among other things, the contentious relationship between Yale University and activist community organizations in New Haven during this period, including the Black Panthers and Hill Neighborhood Parents Association. Students develop original research papers based on archival materials. The seminar touches on historical methodology, archiving practices, and how to circulate knowledge about community healing and harm within and beyond the academy. Organizers in New Haven will be invited to reflect on our work at the end of the seminar. Priority is given to undergraduate juniors and seniors. WR, HU

* **HSHM 449b, Critical Data Visualization: History, Theory, and Practice** Bill Rankin

Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshoping of students' own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software. HU

* **HSHM 455a / ER&M 391a, Eugenics and its Afterlives** Daniel HoSang

This course examines the influence of Eugenics research, logics, and ideas across nearly every academic discipline in the 20th century, and the particular masks, tropes, and concepts that have been used to occlude attentions to these legacies today. Students make special use of the large collection of archives held within Yale Special Collections of key figures in the American Eugenics Society. Students work collaboratively to identify alternative research practices and approaches deployed in scholarly and creative works that make racial power visible and enable the production of knowledge unburdened by the legacies of Eugenics and racial science. Prerequisite: ER&M 200.

HU

* **HSHM 458a, Scientific Instruments & the History of Science** Paola Bertucci

What do scientific instruments from the past tell us about science and its history? This seminar foregrounds historical instruments and technological devices to explore how experimental cultures have changed over time. Each week students focus on a specific instrument from the History of Science and Technology Division of the Peabody Museum: magic lantern, telescope, telegraph, astrolabe, sundial, and more! WR, HU

* **HSHM 461b / HUMS 332b / RLST 300b, The New Age** Noreen Khawaja and Joanna Radin

Seminar on the history and thought of the "new age"—a broad field of interactions between science and spirituality in the colonial West as well as a projected epoch of interconnection in which their antagonism is overcome. We take up the materials of the new age in historical perspective—from theosophy to psychoanalysis, astrology to aesthetics. We also consider the contemporary legacies of new age movements in culture and counterculture. Readings may include Aimé Césaire, Helena Blavatsky, CG Jung, Projit Mukherji, MC Richards, Geary Hobson, Aldous Huxley, Annie Besant, Aisha Beliso-De Jesús.

* **HSHM 467b, History of the Body** Ziv Eisenberg

What does it mean to have a “bad hair day?” How should you care for your skin? What happens when you eat a burger and drink wine? How are babies made? What happens when you die? The answers depend not only on who provides them, but also on where and when. This seminar examines historical production of systems of corporeal knowledge and power, as well as the norms, practices, meanings, and power structures they have created, displaced, and maintained. Structured thematically, the course familiarizes students with major topics in the history of the body, health, and medicine, with a particular focus on US history. WR, HU

* **HSHM 469b / AMST 467b / MCDB 469b, Biology of Humans through History, Science, and Society** Valerie Horsley

This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

HSHM 470a or b, Directed Reading Staff

Readings directed by members of the faculty on topics in the history of science, medicine, or public health not covered by regular course offerings. Subjects depend on the interests of students and faculty. Weekly conferences; required papers.

* **HSHM 473b / HIST 403Jb, Vaccination in Historical Perspective** Jason Schwartz

For over two centuries, vaccination has been a prominent, effective, and at times controversial component of public health activities in the United States and around the world. Despite the novelty of many aspects of contemporary vaccines and vaccination programs, they reflect a rich and often contested history that combines questions of science, medicine, public health, global health, economics, law, and ethics, among other topics. This course examines the history of vaccines and vaccination programs, with a particular focus on the 20th and 21st centuries and on the historical roots of contemporary issues in U.S. and global vaccination policy. Students gain a thorough, historically grounded understanding of the scope and design of vaccination efforts, past and present, and the interconnected social, cultural, and political issues that vaccination has raised throughout its history and continues to raise today. HU

* **HSHM 489b / HIST 109Jb, Activism and Advocacy in the History of American Health Care** Kelly O'Donnell

Is health care a human right? Can health advocacy shape health policy? What does it mean to be a health “activist” and to demand change of medicine? Health care in America has always been political. In this seminar students explore the rich history of health activism and health advocacy in the modern United States, focusing primarily on the postwar period through the present day. Each week we encounter new varieties of grassroots organizing, individual activists, and advocacy organizations that have made political claims about health care and pushed for its reform. We examine how health activism shapes broader cultural conversations about health and the practice of medicine itself. This course does not aim to provide a comprehensive history of health activism in modern America, but rather takes a case study approach, for critical analysis of themes and tactics. For each session, students read a selection of essays, book chapters, or primary source materials about a particular variety of health activism. Through these readings, we discuss how the critiques of activists and the responses by medical practitioners reveal the significant impact of race, gender, class, and sexuality on the provision of health care in this country. We also consider how historians have approached this subject, both as scholars and participant-observers. Students become adept at primary source analysis and able to engage in scholarly conversations with secondary sources. WR, HU

* **HSHM 490a or b and HSHM 491a or b, Yearlong Senior Project** Kelly O'Donnell

Preparation of a yearlong senior project under the supervision of a member of the faculty. There will be a mandatory meeting at the beginning of the term for students who have chosen the yearlong senior project; students will be notified of the time and location by e-mail before classes begin. Majors planning to begin their projects who do not receive this notice should contact the senior project director. Students expecting to graduate in May enroll in HSHM 490 during the fall term and complete their projects in HSHM 491 in the spring term. December graduates enroll in HSHM 490 in the spring term and complete their projects in HSHM 491 during the following fall term. Majors planning to begin their projects in the spring term should notify the senior project director by the last day of classes in the fall term. Students must meet progress

requirements by specific deadlines throughout the first term to receive a temporary grade of SAT for HSHM 490, which will be changed to the grade received by the project upon the project's completion. Failure to meet any requirement may result in the student's being asked to withdraw from HSHM 490. For details about project requirements and deadlines, consult the HSHM Senior Project Handbook. Students enrolled in HSHM 491 must submit a completed project to the HSHM Registrar no later than 5 p.m. on the due date as listed in the HSHM Senior Project Handbook. Projects submitted after 5 p.m. on the due date without an excuse from the student's residential college dean will be subject to grade penalties. Credit for HSHM 490 only on completion of HSHM 491.

*** HSHM 492a or b, One-Term Senior Project** Kelly O'Donnell

Preparation of a one-term senior project under the supervision of an HSHM faculty member, or of an affiliated faculty member with approval of the director of undergraduate studies. There will be a mandatory meeting at the beginning of the term for students who have chosen the one-term senior project; students will be notified of the time and location by e-mail before classes begin. Majors planning to begin their projects who do not receive this notice should contact the senior project director. Students expecting to graduate in May enroll in HSHM 492 during the fall term. December graduates enroll in HSHM 492 in the preceding spring term. Students planning to begin their project in the spring should notify the senior project director by the last day of classes in the fall term. Majors must submit a completed Statement of Intention form signed by the faculty member who has agreed to supervise the project to the HSHM administrator on the due date. Blank statement forms are available in the HSHM Senior Project Handbook on the HSHM website. Students enrolled in HSHM 492 must submit a completed senior project to the HSHM administrator as listed in the HSHM Senior Project Handbook no later than 5 p.m. on the due date in the fall term, or no later than 5 p.m. on the due date in the spring term. Projects submitted after 5 p.m. on the due date without an excuse from the student's residential college dean will be subject to grade penalties.

*** HSHM 497a / HIST 190Ja, Technology in American Medicine from Leeches to Surgical Robots** Kelly O'Donnell

From leeches to robot-assisted surgery, technology has both driven and served as a marker of change in the history of medicine. Using technology as our primary frame of analysis, this course focuses on developments in modern medicine and healing practices in the United States, from the nineteenth century through the present day. How have technologies, tools, and techniques altered medical practice? Are medical technologies necessarily “advances?” How are technologies used to “medicalize” certain aspects of the human experience? In this class we focus on this material culture of medicine, particularly emphasizing themes of consumerism, expertise, professional authority, and gender relations. WR, HU

Human Rights Studies (HMRT)

HMRT 100b / PLSC 148b, Theories, Practices, and Politics of Human Rights Staff

Introduction to core human-rights issues, ideas, practices, and controversies. The concept of human rights as a philosophical construct, a legal instrument, a political tool, an approach to economic and equity issues, a social agenda, and an international

locus of contestation and legitimation. Required for students in the Multidisciplinary Academic Program in Human Rights. SO o Course cr

* **HMRT 400a, Advanced Human Rights Colloquium** Staff

This course is the culminating seminar for Yale College seniors in the Multidisciplinary Academic Program in Human Rights (Human Rights Scholars). The goal of the colloquium is to help students conceive and produce a meaningful capstone project as a culmination of their work in the program. It is a singular opportunity for students to pursue in-depth research in human rights. Open only to Human Rights Scholars in their senior year and a requirement for completing the program.

Humanities (HUMS)

* **HUMS 020a / ITAL 020a, Six Pretty Good Dogs** Simona Lorenzini

We all have heard the phrase “Dogs are man’s best friends.” For thousands and thousands of years there has been an indissoluble friendship between man and dog, an unwritten covenant, a symbiotic relationship that has no equal in the animal world. Why do we consider them our ‘best friends’? And is this always true? If not, why do we sometimes fear dogs? What role have dogs played in our understanding of being human? This course explores images of dogs in 20th-21st Italian literature through six main categories: a man and his dog; dogs and inhumanity; dogs and exile; dogs and children; dogs and folktales; dogs and modern bestiary. We discuss and close read a variety of texts, which are representative of different strategies for reflecting on the self and on the ‘other’ by unpacking the unstable relationship between anthropomorphism, personification, and humanization. Hopefully, these texts impel us to understand how profoundly the animal is involved in the human and the human in the animal. This course is part of the "Six Pretty Good Ideas" program. All readings in English. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU 1½ Course cr

* **HUMS 021a / NELC 007a, Six Pretty Good Heroes** Kathryn Slanski

Focusing on the figure of the hero through different eras, cultures, and media, this course provides first-year students with a reading-and writing-intensive introduction to studying the humanities at Yale. The course is anchored around six transcultural models of the hero that similarly transcend boundaries of time and place: the warrior, the sage, the political leader, the proponent of justice, the poet/singer, and the unsung. Our sources range widely across genres, media, periods, and geographies: from the ancient Near Eastern, *Epic of Gilgamesh* (1500 BCE) to the Southeast Asian *Ramayana*, to the Icelandic-Ukrainian climate activism film, *Woman at War* (2018). As part of the Six Pretty Good suite, we explore Yale's special collections and art galleries to broaden our perspectives on hierarchies of value and to sharpen our skills of observation and working with evidence. Six Pretty Good Heroes is a 1.5 credit course, devoting sustained attention students’ academic writing and is an excellent foundation for the next seven semesters at Yale. Required Friday sessions are reserved for writing labs and visits to Yale collections, as well as one-on-one and small-group meetings with the writing instruction staff. WR, HU o Course cr

* **HUMS 033a / ITAL 030a, Six Pretty Good Knights** Alessandro Giammei

What do Batman (the Dark Knight) and Orlando (Charlemagne’s wise paladin) have in common? What is the thread that connects the Jedi knights of *Star Wars*

and those that sat around King Arthur's round table? How did medieval history and Renaissance poetry inform the expanded universes of superhero movies and fantasy literature, along with the inexhaustible fan-fiction that further extends and queers them? Chivalry, as a code of conduct and a network of symbols, inspired some of the most entertaining stories of the so-called Western canon, blurring the divide between high and popular culture. It offered storytellers (and nerds) of all ages a set of norms to question, bend, and break—especially in terms of gender. It challenged the very format of books, re-defining for good concepts like literary irony, seriality, and intermediality. This seminar proposes six pretty good trans-historical archetypes of fictional knights, combining iconic figures such as Marvel's Iron Man and Italo Calvino's Agilulfo, Ludovico Ariosto's Bradamante and *Game of Thrones*' Brienne of Tarth, Don Quixote and the Mandalorian. By analyzing together their oaths, weapons, armors, and destinies we aim to develop reading and writing skills to tackle any text, from epic and scholarship to TV-shows and comic-books. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU o Course cr

* **HUMS 037a / LITR 037a, The Limits of the Human** Steven Shoemaker

As we navigate the demands of the 21st century, an onslaught of new technologies, from artificial intelligence to genetic engineering, has pushed us to question the boundaries between the human and the nonhuman. At the same time, scientific findings about animal, and even plant intelligence, have troubled these boundaries in similar fashion. In this course, we examine works of literature and film that can help us imagine our way into these "limit cases" and explore what happens as we approach the limits of our own imaginative and empathetic capacities. We read works of literature by Mary Shelley, Kazuo Ishiguro, Richard Powers, Octavia Butler, Ted Chiang, and Jennifer Egan, and watch the movies *Blade Runner*, *Ex Machina*, *Arrival*, *Avatar*, and *Her*. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HUMS 060a, Novel Novels** Brianne Bilsky

Stream of consciousness. Metafiction. Intertextuality. Typographic experimentation. These are some of the innovative narrative techniques that authors have used to push the boundaries of fiction over time. Why does literary innovation happen? How has the development of fiction been influenced by developments in other fields such as psychology, art, philosophy, or physics? What does it mean to say that a novel is *novel*? This course addresses such questions by taking an interdisciplinary approach to looking closely at several innovative novels from the early twentieth century to the present. As we move from modernism to postmodernism and on to the present moment, we not only explore the ways that novels may engage creatively with other fields but also how they are in dialogue with literary history itself. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HUMS 061a / CLCV 051a / LITR 029a / MUSI 054a / THST 051a, Performing Antiquity** Pauline LeVen

This seminar introduces students to some of the most influential texts of Greco-Roman Antiquity and investigates the meaning of their "performance" in different ways: 1) how they were musically and dramatically performed in their original context in Antiquity (what were the rhythms, the harmonies, the dance-steps, the props used, etc.); 2) what the performance meant, in socio-cultural and political terms, for

the people involved in performing or watching it, and how performance takes place beyond the stage; 3) how these texts are performed in modern times (what it means for us to translate and stage ancient plays with masks, a chorus, etc.; to reenact some ancient institutions; to reconstruct ancient instruments or compose “new ancient music”); 4) in what ways modern poems, plays, songs, ballets constitute forms of interpretation, appropriation, or contestation of ancient texts; 5) in what ways creative and embodied practice can be a form of scholarship. Besides reading ancient Greek and Latin texts in translation, students read and watch performances of modern works of reception: poems, drama, ballet, and instrumental music. A few sessions are devoted to practical activities (reenactment of a symposium, composition of ancient music, etc.). Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **HUMS 065a / EDST 065a, Education and the Life Worth Living** Matthew Croasmun

Consideration of education and what it has to do with real life—not just any life, but a life worth living. Engagement with three visions of different traditions of imagining the good life and of imagining education: Confucianism, Christianity, and Modernism. Students will be asked to challenge the fundamental question of the good life and to put that question at the heart of their college education. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HUMS 067b / AMST 070b / ENGL 067b, The Road in Literature and Film** Steven Shoemaker

Stories about journeys are at the heart of some of the most powerful works of art and literature that humankind has produced, from the time of Homer’s *Odyssey* onward, and the trope of the journey has played an especially prominent role in American literature and film. In this course, we look at modern and contemporary examples of books and films that explore “the road” both as a path to freedom and discovery and as a site of hardship and precarity. Along the way, we examine quests for personal enlightenment, flights from economic and political oppression, and attempts to locate some “elsewhere” that’s more exciting than home. Works of literature are likely to include Walt Whitman’s “Song of the Open Road,” Jack Kerouac’s *On the Road*, John Steinbeck’s *The Grapes of Wrath*, Muriel Rukeyser’s *U.S. 1*, Jesmyn Ward’s *Sing, Unburied, Sing*, and Colson Whitehead’s *The Underground Railroad*. Films are likely to include Sullivan’s *Travels, It Happened One Night*, *Easy Rider*, *Thelma and Louise*, and *Into the Wild*. WR, HU

* **HUMS 073a, Classical Storytelling in the Modern World** Brian Price

In his seminal work *Poetics*, Aristotle first identified the observable patterns and recurring elements that existed in the successful tragedies and epic poems of his time, as he posed the existential query: Why do we tell stories? And his illuminating analysis and conclusions are still just as meaningful and relevant today in our contemporary dramatic narratives, our movies, plays, and Netflix binges-of-the-week. In this seminar, we examine Aristotle’s observations and conclusions and relate them to the contemporary stories we consume and enjoy today. By doing so, we identify the universal principles that all good stories share, investigate how these principles connect us all despite cultural, ethnic, and geographical differences, learn how to incorporate Aristotle’s precepts into our own creative expression and communications—and most importantly, explore the vital function of storytelling, why we tell them, what makes a

good one, and how to best tell one effectively. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HUMS 096a, Collecting History: "Treasures" of Yale** Anna Franz

This course considers the concept of “treasure” by visiting nearly all of Yale’s galleries, museums, and library special collections. We explore questions around how these objects and materials were created, how they came to be at Yale, and the considerations and compromises that make up collections of cultural heritage materials. We learn what these objects say about themselves, their creators, their users, and their collectors. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **HUMS 127a or b / ENGL 129a or b / LITR 168a or b / THST 129a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

* **HUMS 128a / LITR 200a / NELC 128a, From Gilgamesh to Persepolis: Introduction to Near Eastern Literatures** Samuel Hodgkin

This course is an introduction to Near Eastern civilization through its rich and diverse literary cultures. We read and discuss ancient works, such as the *Epic of Gilgamesh*, *Genesis*, and “The Song of Songs,” medieval works, such as *A Thousand and One Nights*, selections from the *Qur’an*, and *Shah-nama: The Book of Kings*, and modern works of Israeli, Turkish, and Iranian novelists and Palestinian poets. Students complement classroom studies with visits to the Yale Babylonian Collection and the Beinecke Rare Book and Manuscript Library, as well as with film screenings and guest speakers. Students also learn fundamentals of Near Eastern writing systems, and consider questions of tradition, transmission, and translation. All readings are in translation. Permission from the instructor required. WR, HU

* **HUMS 130a / GMAN 200a / LITR 130a, How to Read** Rudiger Campe and Hannan Hever

Introduction to techniques, strategies, and practices of reading through study of lyric poems, narrative texts, plays and performances, films, new and old, from a range of times and places. Emphasis on practical strategies of discerning and making meaning, as well as theories of literature, and contextualizing particular readings. Topics include form and genre, literary voice and the book as a material object, evaluating translations, and how literary strategies can be extended to read film, mass media, and popular culture. Junior seminar; preference given to juniors and majors. HU

HUMS 134a / ENGL 154a / FREN 216a / LITR 194a, The Multicultural Middle Ages
Staff

Introduction to medieval English literature and culture in its European and Mediterranean context, before it became monolingual, canonical, or author-bound. Genres include travel writing, epic, dream visions, mysticism, the lyric, and

autobiography, from the Crusades to the Hundred Years War, from the troubadours to Dante, from the *Chanson de Roland* to Chaucer. Formerly ENGL 189. WR, HU
o Course cr

HUMS 138a / LITR 428a / MMES 138a / NELC 131a / RLST 165a, The Quran Travis Zadeh

Introduction to the study of the Quran. Topics include: the literary, historical, and theological reception of the Quran; its collection and redaction; the scriptural milieu of late antiquity; education and religious authority; ritual performance and calligraphic expression; the diversity of Muslim exegesis. HU

*** HUMS 139a / MUSI 137a, Western Philosophy in Four Operas 1600-1900** Gary Tomlinson

This course intensively study\ies four operas central to the western repertory, spanning the years from the early 17th to the late 19th century: Monteverdi's *Orfeo*, Mozart's *Don Giovanni*, Wagner's *Die Walküre* (from *The Ring of the Nibelungs*), and Verdi's *Simon Boccanegra*. The course explores the expression in these works of philosophical stances of their times on the human subject and human society, bringing to bear writings contemporary to them as well as from more recent times. Readings include works of Ficino, Descartes, Rousseau, Wollstonecraft, Schopenhauer, Kierkegaard, Douglass, Marx, Nietzsche, Freud, and Adorno. We discover that the expression of changing philosophical stances can be found not only in dramatic themes and the words sung, but in the changing natures of the musical styles deployed. HU

HUMS 140b / NELC 121b, The Hero in the Ancient Near East Kathryn Slanski

Exploration of the interaction of religion, history, and literature in the ancient Near East through study of its heroes, including comparison with heroes, heroic narratives, and hero cults in the Bible and from classical Greece. WR, HU o Course cr

HUMS 144a / CLCV 206a / HIST 217a, The Roman Republic Staff

The origins, development, and expansion of Rome from the earliest times to the deaths of Caesar and Cicero. Cultural identity and interaction; slavery, class, and the family; politics, rhetoric, and propaganda; religion; imperialism; monumentality and memory; and the perception and writing of history. Application of literary and archaeological evidence. HU o Course cr

*** HUMS 145a / CLCV 345a, Ancient Greek and Roman Novels in Context** Staff

A thorough examination of ancient novels as ancestors to the modern novel. Focus on seven surviving Greek and Roman novels, with particular emphasis on questions of interpretation, literary criticism, and literary theory, as well as cultural issues raised by the novels, including questions of gender and sexuality, ethnicity, cultural identity, religion, and intellectual culture of the first centuries A.D. WR, HU

*** HUMS 177a / CLCV 377a / PLSC 306a, Tragedy and Politics** Daniel Schillinger

The canonical Greek tragedians – Aeschylus, Sophocles, and Euripides – dramatize fundamental and discomfiting questions that are often sidelined by the philosophical tradition. In this seminar, we read plays about death, war, revenge, madness, impossible choices, calamitous errors, and the destruction of whole peoples. Aeschylus, Sophocles, and Euripides were also piercing observers of political life. No less than Plato and Aristotle, the Attic tragedians write to elicit reflection on the basic patterns of politics: democracy and tyranny, war and peace, the family and the city, the rule of law and violence. Finally, we also approach Greek tragedy through its

reception. Aristophanes, Plato, Aristotle, and Nietzsche: all these thinkers responded to tragedy. Texts include Aeschylus, *Oresteia*; Aristophanes, *Frogs* and *Lysistrata*; Euripides, *Bacchae*, *Heracles*, and *Trojan Women*; Nietzsche, *The Birth of Tragedy*; Plato, *Symposium*; and Sophocles, *Antigone*, *Philoctetes*, and *Oedipus Tyrannus*. Previous work in political theory, classics, or philosophy is recommended. HU

HUMS 180a / ITAL 310a / LITR 183a, Dante in Translation Staff

A critical reading of Dante's *Divine Comedy* and selections from the minor works, with an attempt to place Dante's work in the intellectual and social context of the late Middle Ages by relating literature to philosophical, theological, and political concerns. No knowledge of Italian required. Course conducted in English. HU o Course cr

* **HUMS 182a, The Work of Art in the Age of Revolt** Timothy Kreiner

Modernity inarguably names the growth of markets and civil liberties. Yet every society that took root in the modern period is riddled with ongoing struggles for freedom from the miseries of race, gender, class, and so on. How do we explain that fact? And what part do works of art play in the struggles of the variously dominated and dispossessed today? This course poses those questions by placing major works of literature in conversation with influential works of political theory from the sixteenth through the twenty-first centuries. Along the way we ask also how the work of art came to be seen as part and parcel of workers' movements alongside struggles for women's suffrage and the abolition of slavery in the nineteenth century; and why it became crucial, in the eyes of many observers, to the novel liberation movements that circled the globe after 1945. Work by writers and militants such as Thomas Nashe, Martin Luther, Thomas Müntzer, Gerrard Winstanley, Silvia Federici, Frederick Douglass, Toussaint Louverture, Djuna Barnes, Alexandra Kollontai, Marx and Engels, Peter Weiss, V. I. Lenin, Rosa Luxembourg, Aimee Cesaire, Frantz Fanon, Gwendolyn Brooks, Martin Luther King, Jr., Malcolm X, James and Grace Lee Boggs, Marge Piercy, Mariarosa Dalla Costa, Toni Cade Bambara, Combahee River Collective, Asef Bayat. HU

* **HUMS 183a / EP&E 223a / RLST 162a, Tradition and Modernity: Ethics, Religion, Politics, Law, & Culture** Andrew Forsyth

This seminar is about "tradition" – what it is and what it does – and how reflecting on tradition can help us better understand ethics, religion, politics, law, and culture. We ask: for whom and in what ways (if any) are the beliefs and practices transmitted from one generation to another persuasive or even authoritative? And how do appeals to tradition work today? We traverse a series of cases studies in different domains. Looking to ethics, we ask if rational argument means rejecting or inhabiting tradition. Next, we look at religions *as* traditions and traditions as one source of authority *within* religions. We consider appeals to tradition in conservative and progressive politics. And how the law uses decisions on past events to guide present actions. Finally, we turn to tradition in civic and popular culture with attention to "invented traditions," the May 2023 British Coronation, and Beyoncé's 2019 concert film "Homecoming." HU

* **HUMS 185a / ENGL 419a / HSAR 460a, Writing about Contemporary Figurative Art** Margaret Spillane

A workshop on journalistic strategies for looking at and writing about contemporary paintings of the human figure. Practitioners and theorists of figurative painting; controversies, partisans, and opponents. Includes field trips to museums and galleries in New York City. Formerly ENGL 247. WR, HU

* **HUMS 186a / FILM 369a / RSEE 244a / RUSS 222a, War Games** Marijeta Bozovic
Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players “perform” war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU

* **HUMS 191a / ITAL 340a / LITR 347a / WGSS 362a, Dangerous Women: Sirens, Singers, Poets and Singers from Sappho to Elena Ferrante** Jane Tylus
Was Sappho a feminist? This course tries to answer that question by analyzing how women's voices have been appropriated by the literary and cultural canon of the west—and how in turn women writers and readers have reappropriated those voices. Students read a generous amount of literary (and in some cases, musical) works, along with a variety of contemporary theoretical approaches so as to engage in conversation about authorship, classical reception, and materiality. Following an introduction to Greek and Roman texts key for problematic female figures such as sirens and sibyls, we turn to two later historical moments to explore how women artists have both broken out of and used the western canon, redefining genre, content, and style in literary creation writ large. How did Renaissance women such as Laura Cereta, Gaspara Stampa, and Sor Juana Inés de la Cruz fashion themselves as authors in light of the classical sources they had at hand? And once we arrive in the 20th and 21st centuries, how do Sibilla Aleramo, Elsa Morante, Anna Maria Ortese, and Elena Ferrante forge a new, feminist writing via classical, queer and/or animal viewpoints? HU

* **HUMS 200a / ENGL 205a / LITR 195a / MUSI 462a, Medieval Songlines** Ardis Butterfield
Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

HUMS 219a / AMST 215a / HIST 485a / HSHM 217a, Biomedical Futures and Michael Crichton's Monsters Staff

What forms of life have been produced by modern science? The literal life-changing technologies that began to emerge after the Second World War also provoked new anxieties. They expressed themselves in the speculative fiction of Michael Crichton in terms of monsters: the virus in *The Andromeda Strain*, the androids in *Westworld*, the velociraptors of *Jurassic Park*, and even the patients maimed by gunshot wounds in *ER*. Crichton wrote thrilling stories that also asked his readers to consider what monsters humans could make if they didn't stop to consider whether or not they should. This course examines the emergence of modern life science to consider what it would take to produce more life-sustaining futures. HU, SO o Course cr

* **HUMS 224b / HIST 210Jb, Hobbes and Galileo: Materialism and the Emergence of Modernity** William Klein

Hobbes considered himself a disciple of Galileo, but as a systematic philosopher and ideologue during a period of civil unrest in England, he no doubt produced something that Galileo, a Tuscan astrophysicist and impassioned literary critic, was not entirely responsible for: an absolutist theory of the modern state situated within an eschatological time frame. In this course we will reflect on the relation between Galileo's anti-Aristotelian physics and Hobbes' system by reading key texts by Galileo and Hobbes along with an array of interpretations and criticisms of Hobbes that will serve to situate Hobbes in early modern currents of thought in science, religion and politics, while at the same time situating us in contemporary ideological debates about the origins of modernity. HU

* **HUMS 228a / EVST 228a / HIST 459a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

* **HUMS 237b / ENGL 292b, Past and Present in Fiction since 1789** Katja Lindskog

Drawing on English-language literature, art, and history-writing since 1800, this class explores how the past can illuminate and complicate the ways we perceive the present. We begin with the geopolitical and social revolutions of the 1800s as seen through essays and fictions by Charles Dickens, Alice Meynell, and Thomas Carlyle, and end with the memoir-as-history of Hazel Carby's *Imperial Intimacies* (2019). Along the way, we explore a variety of approaches to making the past come alive in the present; through the "what if" posed by alternate history speculations, through didactic history in fact and fiction imagined for children, the use of the past as a site of romance, and through visual media like paintings and cinema. Throughout the course, we address questions like: how does fiction work to interpret the past? How does our interpretation of the past reflect and help us process present day concerns? Is the past best imagined as a foreign country full of exotic difference to the present, as a mirror to ourselves? HU TR

* **HUMS 244a, Love, Marriage, Family: A Psychological Study through the Arts**

Ellen Handler Spitz and R Howard Bloch

A psychological study of love, marriage, and family through literature, visual arts, and music, from the ancient world to mid-century America. An over-arching theme is the protean human potential for adaptation, innovation, and creativity by which couples and families struggle to thrive in the face of opposing forces, both internal and external. In this seminar, we study these themes not only as they have been treated in different parts of the world at different times, but also the means offered by each of the arts for their portrayal. HU

* **HUMS 247a / SOCY 352a, Material Culture and Iconic Consciousness** Jeffrey Alexander

How and why contemporary societies continue to symbolize sacred and profane meanings, investing these meanings with materiality and shaping them aesthetically. Exploration of "iconic consciousness" in theoretical terms (philosophy, sociology, semiotics) and further exploration of compelling empirical studies about food and bodies, nature, fashion, celebrities, popular culture, art, architecture, branding, and politics. HU, SO

* **HUMS 252a / AMST 346a / ENGL 235a, Poetry and Objects** Karin Roffman

This course on 20th and 21st century poetry studies the non-symbolic use of familiar objects in poems. We meet alternating weeks in the Beinecke library archives and the Yale Art Gallery objects study classroom to discover literary, material, and biographical histories of poems and objects. Additionally, there are scheduled readings and discussions with contemporary poets. Assignments include both analytical essays and the creation of online exhibitions. WR, HU

* **HUMS 262b / ENGL 269b / LITR 204b, Modernism and Domesticity** Katie Trumpener

Exploration of turn-of-the-century European attempts to craft modernist lives: how new ideas of women's roles, childhood, and the family shaped modernist literature and art—even as modernist designers tried to change people's experience of daily surroundings. Topics include a range of New Woman novels, modernist design, fashion, and stage sets, exemplary artists' houses (Carl and Karen Larson, Vanessa and Duncan Grant), reform fashions, portraits and family portraits, experimental fiction, memoirs (Andrej Bely, Walter Benjamin, Joyce, Woolf), and children's books as designs for living. Students will have the opportunity to research in modernist periodicals or contribute to the upcoming Beinecke Text/Textile exhibit. WR, HU

* **HUMS 269b / EALL 230b / EAST 242b / LITR 238b, Poetry and Ethics Amidst Imperial Collapse** Lucas Bender

Du Fu has for the last millennium been considered China's greatest poet. Close study of nearly one-sixth of his complete works, contextualized by selections from the tradition that defined the art in his age. Exploration of the roles literature plays in interpreting human lives and the ways different traditional forms shape different ethical orientation. Poetry as a vehicle for moral reflection. All readings are in English. WR, HU

HUMS 270a / CHNS 200a / EALL 200a / EAST 240a, The Chinese Tradition Staff

An introduction to the literature, culture, and thought of premodern China, from the beginnings of the written record to the turn of the twentieth century. Close study of textual and visual primary sources, with attention to their historical and

cultural backdrops. Students enrolled in CHNS 200 join a weekly Mandarin-language discussion section. No knowledge of Chinese required for students enrolled in EALL 200. Students enrolled in CHNS 200 must have L5 proficiency in Mandarin or permission of the course instructor. HU TR o Course cr

* **HUMS 275a / AMST 308a / ENGL 335a, Literatures of the Plague** James Berger
 In a new era of pandemic, we have seen how widespread medical crisis has profound effects on individual life and consciousness, and on political and economic institutions and practices. Our material and psychic supply chains grow tenuous. All of life changes even as we try to preserve what we deem most valuable. We must rethink what we consider to be “essential.” Yet this is far from being a new condition. Infectious disease has been part of the human social world probably since the beginnings of urban life. The Bible describes plagues sent by God as punishment. The earliest historical depiction was by Thucydides shortly after the plague in Athens in 430 BCE. At each occasion, people have tried to witness and to understand these “visitations,” as Daniel Defoe called them. The Plague is always a medical, political, economic and an interpretive crisis. It is also a moral crisis, as people must not only try to understand but also determine how to act. This course studies accounts of pandemics, from Thucydides in Athens up to our ongoing Coronavirus outbreaks. We trace the histories of understanding that accompanied pandemics: religious, scientific, philosophical, ethical, literary. It seems to be the case that these vast, horrifying penetrations of death into the fabric of life have inspired some of our fragile and resilient species’ most strange and profound meditations.

HU

HUMS 277b / HIST 231b, European Intellectual History from Renaissance to Revolution Isaac Nakhimovsky

A survey of eighteenth-century European intellectual life, considered in its social and cultural contexts and with attention to its historical legacies, focusing on responses to emerging global networks of trade, finance, and empire. HU TR o Course cr

* **HUMS 294a / EVST 294a / RSEE 355a / RUSS 355a, Ecology and Russian Culture**
 Molly Brunson

Interdisciplinary study of Russian literature, film, and art from the nineteenth to the twenty-first centuries, organized into four units – forest, farm, labor, and disaster. Topics include: perception and representation of nature; deforestation and human habitation; politics and culture of land-ownership; leisure, labor, and forced labor; modernity and industrialization; and nuclear technologies and disasters. Analysis of short stories, novels, and supplementary readings on ecocriticism and environmental humanities, as well as films, paintings, and visual materials. Several course meetings take place at the Yale Farm. Readings and discussions in English. HU

* **HUMS 303a / EDST 281a / HIST 404a / PLSC 281a, What is the University?**
 Mordechai Levy-Eichel

The University is one of the most influential – and underexamined – kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one

of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO TR

* **HUMS 313b / HIST 212Jb, Philosophy of Dissent in Central and Eastern Europe**

Marci Shore

This is a seminar in the field of European intellectual history, based on primary sources. It focuses on how philosophers, novelists, sociologists, and other thinkers developed and articulated a philosophy of dissent under communism. More specific topics include the relationships between temporality and subjectivity and between truth and lies, and the role that existentialism played in formulating philosophical critiques of repression. Readings consist of a mixture of philosophical and literary works from the Soviet Union, East Germany and the lands in-between. Potential authors include Merab Mamardashvili, Danilo Kiš, Józef Tischner, Adam Michnik, Jacek Kuro#, Ladislav Hejdanek, Václav Havel, Jan Patočka, Leszek Kołakowski, Gajo Petrovi#, Norman Manea, Lev Kopelev, Igor Pomerantsev, Tomas Venclova. HU

* **HUMS 323a / HIST 236Ja, Truth and Sediton** William Klein

The truth can set you free, but of course it can also get you into trouble. How do the constraints on the pursuit and expression of "truth" change with the nature of the censoring regime, from the family to the church to the modern nation-state? What causes regimes to protect perceived vulnerabilities in the systems of knowledge they privilege? What happens when conflict between regimes implicates modes of knowing? Are there types of truth that any regime would—or should—find dangerous? What are the possible motives and pathways for self-censorship? We begin with the revolt of the Hebrews against polytheistic Egypt and the Socratic questioning of democracy, and end with various contemporary cases of censorship within and between regimes. We consider these events and texts, and their reverberations and reversals in history, in relation to select analyses of the relations between truth and power, including Hobbes, Locke, Kant, Brecht, Leo Strauss, Foucault, Chomsky, Waldron, Zizek, and Xu Zhongrun. WR, HU

* **HUMS 332b / HSHM 461b / RLST 300b, The New Age** Noreen Khawaja and

Joanna Radin

Seminar on the history and thought of the "new age"—a broad field of interactions between science and spirituality in the colonial West as well as a projected epoch of interconnection in which their antagonism is overcome. We take up the materials of the new age in historical perspective—from theosophy to psychoanalysis, astrology to aesthetics. We also consider the contemporary legacies of new age movements in culture and counterculture. Readings may include Aimé Césaire, Helena Blavatsky, CG

Jung, Projit Mukherji, MC Richards, Geary Hobson, Aldous Huxley, Annie Besant, Aisha Beliso-De Jesús.

HUMS 339a / HIST 271a / RSEE 271a, European Intellectual History since Nietzsche
Staff

Major currents in European intellectual history from the late nineteenth century through the twentieth. Topics include Marxism-Leninism, psychoanalysis, expressionism, structuralism, phenomenology, existentialism, antipolitics, and deconstruction. HU o Course cr

*** HUMS 344a / FILM 318a / GMAN 355a, German Film from 1945 to the Present**
Fatima Naqvi

Trauma, gender, media, transnationalism, terrorism, migration, precarity, neoliberalism, and environmental ethics are the issues we study in films from the German-speaking world. We begin in the immediate post-war period: How does the Second World War and its aftermath inflect these films? How does gender play an increasingly important role in the fiction films under discussion? What new collective identities do films articulate in the course of the politicized period from the late 1960s into the late 1970s, when home-grown terrorism contests the category of the West German nation? How do the predominant concerns shift with the passage of time and with the changing media formats? What is the role of genre in representing transnational problems like migration after 2000? How do economic issues come to the fore in the precarious economic conditions shown? When does violence seem like an answer to political, economic, and social pressures and the legacies of colonialism? Particular attention is paid to film aesthetics. Films include those by Julian Radlmaier, Hubert Sauper, Sudabeh Mortezaei, Fatih Akin, Wolfgang Staudte, Alexander Kluge, Werner Herzog, Rainer Werner Fassbinder, Werner Schroeter, Harun Farocki, Michael Haneke, Christian Petzold, Jessica Hausner, Mara Mattuschka, Ulrich Seidl, Nikolaus Geyrhalt, among others. Visiting directors Julian Radlmaier and Hubert Sauper will be integrated into the course. This class will have an optional German section (50 minutes a week) for students interested in counting this class for the Advanced Language Certificate. A minimum of three students is required for the section to run.

HU

*** HUMS 347a / ENGL 245a, Land, Liberty, and Slavery from Hobbes to Defoe** Feisal
Mohamed

This course considers together several phenomena often considered separately: the conversion of arable land to pasture; the central place of property in seventeenth-century English formulations of political liberty; and the increasing racialization of forced labor in the period. We read seminal works of political theory produced in England's tumultuous seventeenth century, namely those of Hobbes and Locke. We also explore how transformations of labor and property necessarily exert influence in literature, focusing on Andrew Marvell, Aphra Behn, John Dryden, and Daniel Defoe.

WR, HU

*** HUMS 348a / FILM 432a / GMAN 432 / LITR 432a, World War II: Homefront Literature and Film** Katie Trumpener

Taking a pan-European perspective, this course examines quotidian, civilian experiences of war, during a conflict of unusual scope and duration. Considering key works of wartime and postwar fiction and film alongside verbal and visual diaries, memoirs, documentaries, and video testimonies, we will explore the kinds of literary

and filmic reflection war occasioned, how civilians experienced the relationship between history and everyday life (both during and after the war), women's and children's experience of war, and the ways that home front, occupation and Holocaust memories shaped postwar avant-garde aesthetics. HU

* **HUMS 351a / PLSC 314a, The American Imagination: From the Puritans to the Civil War** Paul Grimstad and Mordechai Levy-Eichel

Interdisciplinary examination of the uniqueness of the American experience from the time of the Puritans to the Civil War. Readings draw on major works of political theory, philosophy, and literature. HU

* **HUMS 366a / FREN 330a, The World of Victor Hugo's "Les Misérables"** Maurice Samuels

Considered one of the greatest novels of all time, Victor Hugo's *Les Misérables* (1862) offers more than a thrilling story, unforgettable characters, and powerful writing. It offers a window into history. Working from a new translation, this seminar studies Hugo's epic masterpiece in all its unabridged glory, but also uses it as a lens to explore the world of nineteenth-century France—including issues such as the criminal justice system, religion, poverty, social welfare, war, prostitution, industrialization, and revolution. Students gain the tools to work both as close readers and as cultural historians in order to illuminate the ways in which Hugo's text intersects with its context. Attention is also paid to famous stage and screen adaptations of the novel: what do they get right and what do they get wrong? Taught in English, no knowledge of French is required. HU o Course cr

* **HUMS 380a / ENGL 395a / LITR 154a, The Bible as a Literature** Leslie Brisman

Study of the Bible as a literature—a collection of works exhibiting a variety of attitudes toward the conflicting claims of tradition and originality, historicity and literariness.

WR, HU RP

* **HUMS 387a / SPAN 291a, Introduction to Digital Humanities I: Architectures of Knowledge** Alexander Gil Fuentes

The cultural record of humanity is undergoing a massive and epochal transformation into shared analog and digital realities. While we are vaguely familiar with the history and realities of the analog record—libraries, archives, historical artifacts—the digital cultural record remains largely unexamined and relatively mysterious to humanities scholars. In this course you will be introduced to the broad field of Digital Humanities, theory and practice, through a stepwise exploration of the new architectures and genres of scholarly and humanistic production and reproduction in the 21st century. The course combines a seminar, preceded by a brief lecture, and a digital studio. Every week we will move through our discussions in tandem with hands-on exercises that will serve to illuminate our readings and help you gain a measure of computational proficiency useful in humanities scholarship. You will learn about the basics of plain text, file and operating systems, data structures and internet infrastructure. You will also learn to understand, produce and evaluate a few popular genres of Digital Humanities, including, digital editions of literary or historical texts, collections and exhibits of primary sources and interactive maps. Finally, and perhaps the most important lesson of the semester, you will learn to collaborate with each other on a common research project. No prior experience is required. HU

* **HUMS 392a, Form and Content in Digital and Analog Arts and Sciences** Sayan Bhattacharyya

In this interdisciplinary and multimodal seminar, we look at examples drawn from literature, visual arts, music, film and virtual and augmented reality, focusing on the relationships between form and content in them. We look at the special challenges that digital and computational perspectives present in the context of these relationships, and how humanistic understanding of unifying metaphors drawn from fields such as physics, neuroscience, and AI can help make sense of humans as individuals and as a species with a shared legacy and future. The course consists of discussions of readings in various media of imaginative works of fiction and non-fiction. HU

* **HUMS 393b / EP&E 228b / PLSC 207b, Persuasion and Its Discontents** Norma Thompson

Aristotle argues in his *Rhetoric* that knowledge in its exact form will sometimes not be enough to persuade certain audiences. What then? What strategies are available to us for disarming fierce resistance to good arguments? We consider the psychology of willful blindness and defense mechanisms, from Greek tragedy through Shakespeare, Jane Austen, and Freud. We seek to apprehend how real-life figures and literary characters alike learn to overcome belief in the constructs of their own imaginations. Debates in several politically-charged moments are analyzed: Plato and the Sophists; Burke and Hastings; the Federalists and Anti-Federalists; 19th century abolitionists in America; Churchill on Hitler, and multiple authors on Holocaust denial. HU

* **HUMS 394a / LITR 161a, Imagining Global Lyric** Ayesha Ramachandran

What is lyric? And what might a multi-dimensional, expansive study of the lyric across cultures, languages, and media look like? This course investigates the possibility of studying lyric poetry in cross-cultural and transmedial ways by combining traditional humanistic approaches with new methods opened by the digital humanities. We begin by examining the lyric poem's privileged position within a Western literary canon and exploring other conceptions of "lyric" in non-Western literary traditions. We then take an anthropological approach and trace the pervasiveness of lyric poetry in the world by focusing on four key questions: (a) what is lyric and how is it related to various literary genres? (b) what is the relationship between lyric and the visual image; (c) can lyric be translated across forms and languages? (d) how does lyric uniquely articulate our relationship to the natural world? Participants engage with primary texts in Yale's special collections and contribute to a digital project to compile an exhibit of lyric poetry across the world—a project that highlights the importance and challenges of defining just what a lyric poem is. This is a Franke Seminar in the Humanities. HU

* **HUMS 397a / PHIL 493a / RLST 428a, Neighbors and Others** Nancy Levene

This course is an interdisciplinary investigation of concepts and stories of family, community, borders, ethics, love, and antagonism. Otherwise put, it concerns the struggles of life with others – the logic, art, and psychology of those struggles. The starting point is a complex of ideas at the center of religions, which are given to differentiating "us" from "them" while also identifying values such as the love of the neighbor that are to override all differences. But religion is only one avenue into the motif of the neighbor, a fraught term of both proximity and distance, a contested term and practice trailing in its wake lovers, enemies, kin, gods, and strangers. Who is my neighbor? What is this to ask and what does the question ask of us? Course material includes philosophy, literature, psychology, and film. WR, HU TR

* **HUMS 403a / FREN 423a / LITR 410a, Interpretations: Simone Weil** Greg Ellermann

Intensive study of the life and work of Simone Weil, one of the twentieth century's most important thinkers. We read the iconic works that shaped Weil's posthumous reputation as "the patron saint of all outsiders," including the mystical aphorisms *Gravity and Grace* and the utopian program for a new Europe *The Need for Roots*. But we also examine in detail the lesser-known writings Weil published in her lifetime—writings that powerfully intervene in some of the most pressing debates of her day. Reading Weil alongside contemporaries such as Trotsky, Heidegger, Arendt, Levinas, and Césaire, we see how her thought engages key philosophical, ethical, and aesthetic problems of the twentieth century: the relation between dictatorship and democracy; empire and the critique of colonialism; the ethics of attention and affliction; modern science, technology, and the human point of view; the responsibility of the writer in times of war; beauty and the possibility of transcendence; the practice of philosophy as a way of life. HU

* **HUMS 405a / ENGL 306a, Interpretations Seminar: William Blake** Riley Soles

This course explores the world of William Blake's poetry, with an emphasis on the longer prophetic poems, in conversation with his artistic output. We locate Blake in his historical moment, responding in his poetry and art to a variety of political, philosophical, and aesthetic movements in England and elsewhere. We also see Blake as part of an evolving literary tradition, paying particular attention to his relationship with his poetic precursor John Milton, and to Romantic contemporaries such as William Wordsworth. Trips to the Beinecke Library and the Yale Center for British Art allow us to see firsthand and to think deeply about the materiality of Blake's works, as well as the complex relationships in them between text and image. Finally, we consider Blake as a radical religious thinker and innovator by analyzing his poetry's connections to modes of Biblical vision, prophecy, and apocalypse. HU

* **HUMS 409b / FREN 403b / LITR 224b, Proust Interpretations: Reading *Remembrance of Things Past*** Pierre Saint-Amand and R Howard Bloch

A close reading (in English) of Marcel Proust's masterpiece, *Remembrance of Things Past*, with emphasis upon major themes: time and memory, desire and jealousy, social life and artistic experience, sexual identity and personal authenticity, class and nation. Portions from *Swann's Way*, *Within a Budding Grove*, *Cities of the Plain*, *Time Regained* considered from biographical, psychological/psychoanalytic, gender, sociological, historical, and philosophical perspectives. WR, HU

* **HUMS 410a / ENGL 262a, Modernities: Nineteenth-Century Historical Narratives** Stefanie Markovits and Stuart Semmel

British historical narratives in the nineteenth century, an age often cited as the crucible of modern historical consciousness. How a period of industrialization and democratization grounded itself in imagined pasts—whether recent or distant, domestic or foreign—in both historical novels and works by historians who presented programmatic statements about the nature of historical development. WR, HU

HUMS 416a / GLOBL 452a / HIST 149a, The Crisis of Liberalism Staff

Is there a "crisis of liberalism" occurring in the United States and around the world? What is liberalism? If it is in crisis, what are the features of the disorder and what are

possible responses? Is it possible to believe in the further progress of liberal societies, or have they fallen into a decadent condition? SO o Course cr

HUMS 417a, Thinking Digitally about the Humanities Sayan Bhattacharyya

This is an introduction to Digital Humanities, a field of study that has emerged in the past two decades, which consists of humanists and their associates from computational disciplines seeking to apply digital methods, broadly understood, to the kinds of questions that tend to be of interest in the humanities. We look at how methods drawn from information science, such as data analytics and artificial intelligence, are being applied to humanistic disciplines, especially textual understanding and analysis. HU o Course cr

* **HUMS 418a / AMST 328a / ER&M 357a / HIST 112a, "None Dare Call It Conspiracy:" Paranoia and Conspiracy Theories in 20th and 21st C. America**
Staff

In this course we examine the development and growth of conspiracy theories in American politics and culture in the 20th and 21st centuries. We look at texts from a variety of different analytical and political traditions to develop an understanding of how and why conspiracy theories develop, their structural dynamics, and how they function as a narrative. We examine a variety of different conspiracy theories and conspiratorial groups from across the political spectrum, but we pay particular attention to anti-Semitism as a foundational form of conspiracy theorizing, as well as the particular role of conspiracy theories in far-right politics, ranging from the John Birch Society in the 1960s to the Tea Party, QAnon, and beyond in the 21st century. We also look at how *real* conspiracies shape and reinforce conspiracy theorizing as a mode of thought, and formulate ethical answers on how to address conspiracy as a mode of politics. HU TR

* **HUMS 419a / GMAN 366a / LITR 393a / PHIL 346a, The Short Spring of German Theory** Kirk Wetters

Reconsideration of the intellectual microclimate of German academia 1945–1968. A German prelude to the internationalization effected by French theory, often in dialogue with German sources. Following Philipp Felsch's *The Summer of Theory* (English 2022): Theory as hybrid and successor to philosophy and sociology. Theory as the genre of the philosophy of history and grand narratives (e.g. "secularization"). Theory as the basis of academic interdisciplinarity and cultural-political practice. The canonization and aging of theoretical classics. Critical reflection on academia now and then. Legacies of the inter-War period and the Nazi past: M. Weber, Heidegger, Husserl, Benjamin, Kracauer, Adorno, Jaspers. New voices of the 1950s and 1960s: Arendt, Blumenberg, Gadamer, Habermas, Jauss, Koselleck, Szondi, Taubes. German reading and some prior familiarity with European intellectual history is helpful but not essential. HU

* **HUMS 421a, The End of the World** Matthew Croasmun and John Pittard

A philosophical investigation of present-day apocalyptic fears, utopian dreams, and possible ways that the world (as we know it) might end. Topics to be examined include the potential implications of artificial superintelligence, the assumptions dividing climate alarmists and their critics, the promises and perils of life in virtual worlds, competing views on whether we should seek to avert humanity's extinction or welcome it, and contrasts between secular and religious ways of relating to the end. Engagement with these topics provides the occasion to engage with questions of

enduring philosophical and existential importance: what is most valuable, how should we live, and for what should we hope? HU

* **HUMS 425a / HSAR 350a / LITR 399a / RLST 431a, Reality and the Realistic**

Noreen Khawaja and Joanna Fiduccia

A multidisciplinary exploration of the concept of reality in Euro-American culture. What do we mean when we say something is "real" or "realistic?" From what is it being differentiated—the imaginary, the surreal, the speculative? Can we approach a meaningful concept of the unreal? This course wagers that representational norms do not simply reflect existing notions of reality; they also shape our idea of reality itself. We study the dynamics of realism and its counterparts across a range of examples from modern art, literature, philosophy, and religion. Readings may include: Aimé Césaire, Mircea Eliade, Karen Barad, Gustave Flaubert, Sigmund Freud, Renee Gladman, Saidiya Hartman, Arthur Schopenhauer. Our goal is to understand how practices of representation reveal something about our understanding of reality, shedding light on the ways we use this most basic, yet most elusive concept. HU

HUMS 426b / FILM 403b, Scared to Death: Fear of and in Media Francesco Casetti
Fear is a dominant political, cultural, social, and economic force today. However, its importance is often overlooked, especially in film and media studies. While recent work has looked at our positive affective relationships with media, including fandom and cinephilia, the fear of media has been largely ignored. Yet, media also elicit, amplify, quell, and otherwise respond to cultural anxieties. They convey frightening content; they provide biased information; they produce addiction; they allegedly harm our physical and mental health; they expose our private selves to a public gaze; they seem to expropriate our identities; and so on. Current debates on “fake news,” the increasing role of “conspiracy theories,” and the polarization of sources of information are all elements that further increase the idea of media as a terrifying reality. This lecture course considers how media and fear intersect, asking both how technology mediates fear and how fear shapes our engagement with media. To this end, we have broken the course into two main units. In the first, “Mediating Fears,” we analyze how fear has historically circulated and how media have conveyed and transformed this emotion. In the second, “Fearing Media,” we look at media as objects of fear, due their nature as technological, modern, ephemeral, unfamiliar, attractive, and pervasive objects. In order to better explore fear as a concept and as an object of experience, every week we present a theoretical framework (first meeting) and a case study (second meeting). Readings include academic papers, literary works, op-eds, and articles in both print and digital publications. HU

* **HUMS 427b / ENGL 456b / JDST 316b / LITR 348b, The Practice of Literary**

Translation Peter Cole

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation – by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises,

and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

* **HUMS 429a / FREN 340a / GMAN 232a / JDST 286a / LITR 232a, Paul Celan**

Thomas Connolly

An undergraduate seminar in English exploring the life and work of Paul Celan (1920-1970), survivor of the Shoah, and one of the foremost European poets of the second half of the twentieth century. We will read from his early poems in both Romanian and German, and his published collections including *Der Sand aus den Urnen*, *Mohn und Gedächtnis*, *Von Schelle zu Schelle*, *Sprachgitter*, *Die Niemandrose*, *Atemwende*, *Fadensonnen*, *Lichtzwang*, and *Schneepart*. We will also read from his rare pieces in prose and his correspondence with family, friends, and other intellectuals and poets including Bachmann, Sachs, Heidegger, Char, du Bouchet, Michaux, Ungaretti. A special focus on his poetic translations from French, but also Russian, English, American, Italian, Romanian, Portuguese, and Hebrew. Critical readings draw from Szondi, Adorno, Derrida, Agamben, and others. Readings in English translation or in the original languages, as the student desires. Discussions in English. None. WR, HU

* **HUMS 432a / PLSC 302a, Rousseau's Emile** Bryan Garsten

A close reading of Jean-Jacques Rousseau's masterpiece, *Emile*. Though the book poses as a guide to education, it has much grander aspirations; it offers a whole vision of the human condition. Rousseau called it his "best and worthiest work" and said he believed it would spark a revolution in the way that human beings understand themselves. Many historians of thought believe that the book has done just that, and that we live in the world it helped to create – a claim we consider and evaluate. Presented as a private tutor's account of how he would arrange the education of a boy named Emile from infancy through young adulthood, the book raises fundamental questions about human nature and malleability, how we learn to be free, whether we can view ourselves scientifically and still maintain a belief in free will, whether we are need of some sort of religious faith to act morally, how adults and children, and men and women, ought to relate to one another, how the demands of social life and citizenship affect our happiness – and more. Ultimately the question at issue is whether human beings can find a way to live happily and flourish in modern societies. Prerequisite: One course in political thought, intellectual history or philosophy. HU

* **HUMS 435a / FILM 321a / LAST 359a / LITR 379a, Radical Cinemas in the Global Sixties** Moira Fradinger and Lorenz Hegel

"1968" has become a cipher for a moment of global turmoil, social transformation and cultural revolution. This class explores the "long global sixties" through cinema produced across continents. At the height of the Cold War between two blocks in the "East" and the "West," the "Third World" emerged as a radical political project alternative to a world order shaped by centuries of colonialism, imperialism, slavery, and capitalist exploitation. Liberation, emancipation, independence, anticolonialism, decolonization, and revolution became key words in the global political discourse. Leaders from Africa, Asia, and Latin America created a new international platform, the Non-Aligned Movement (NAM) that challenged the Cold War bi-polarity. Radical filmmakers who belong in this period experimented with strategies of storytelling and of capturing reality, calling into question rigid distinctions between "documentary" and "fiction" and "art and politics." The goal was not to "show" reality, but to change it. We

study a world-wide range of examples that involve filmmakers' collaborations across The Americas, Western Europe, North Africa, South and South-East Asia. Taught in English; films are subtitled but knowledge of other languages may be useful. HU

* **HUMS 443a / HIST 232Ja / JDST 270a / MMES 342a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness—humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

* **HUMS 480a / GMAN 288a / LITR 482a / PHIL 469a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.

HU

* **HUMS 491a, The Senior Essay** Paul Grimstad

Independent library-based research under faculty supervision. To register, students must consult the director of undergraduate studies no later than the end of registration period in the previous term. A written plan of study approved by a faculty adviser must be submitted to the director of undergraduate studies by November 16, 2021, if the essay is to be submitted during the spring term. The final essay is due at noon on April 8, 2022 for spring-term essays. For essays to be completed in the fall term, a rough draft is due October 25, 2021, and the final essay due November 29, 2021. RP

Hungarian (HGRN)

Indonesian (INDN)

INDN 110a, Elementary Indonesian I Indriyo Sukmono

An introductory course in standard Indonesian with emphasis on developing communicative skills through a systematic survey of grammar and graded exercises. Enrollment limited to 15 per section. L1 1½ Course cr

INDN 120b, Elementary Indonesian II Indriyo Sukmono

Continuation of INDN 110. Introduction to reading, leading to mastery of language patterns, essential vocabulary, and basic cultural competence. After INDN 110 or equivalent. Enrollment limited to 15 per section. L2 1½ Course cr

* **INDN 130a, Intermediate Indonesian I** Dinny Aletheiani

Continued practice in colloquial Indonesian conversation and reading and discussion of texts. After INDN 120 or equivalent. Limited enrollment. L3 1½ Course cr

* **INDN 140b, Intermediate Indonesian II** Dinny Aletheiani

Continuation of INDN 130. After INDN 130 or equivalent. Limited enrollment. L4 1½ Course cr

* **INDN 150a, Advanced Indonesian I** Indriyo Sukmono

Development of advanced fluency through discussion of original Indonesian sociohistorical, political, and literary texts and audiovisual sources. Extension of cultural understanding of Indonesia. Prerequisite: INDN 140 or equivalent. May not be taken after INDN 153. L5

* **INDN 170a, Advanced Indonesian: Special Topics** Dinny Aletheiani

Continuation of INDN 160. Students advance their communicative competence in listening, speaking, reading, and writing. Use of Indonesian book chapters, Web pages, printed and electronic articles, social networking posts, newsgroups, and letters. Prerequisite: INDN 160.

* **INDN 180b, Research and Creative Project on Indonesia** Dinny Aletheiani

Continuation of INDN 170. Advancement in students' competence in listening, speaking, reading, and writing. Reading materials include book chapters, Web sites, print and electronic articles, e-mail messages, blogs, and social networking posts. Prerequisite: INDN 170.

* **INDN 470a and INDN 471b, Independent Tutorial** Dinny Aletheiani

For students with advanced Indonesian language skills who wish to engage in concentrated reading and research on material not otherwise offered in courses. The work must be supervised by an adviser and must terminate in a term paper or its equivalent. After INDN 160. Permission to enroll requires submission of a detailed project proposal and its approval by the program adviser.

Italian Studies (ITAL)

* **ITAL 020a / HUMS 020a, Six Pretty Good Dogs** Simona Lorenzini

We all have heard the phrase “Dogs are man’s best friends.” For thousands and thousands of years there has been an indissoluble friendship between man and dog, an unwritten covenant, a symbiotic relationship that has no equal in the animal world. Why do we consider them our ‘best friends’? And is this always true? If not, why do we sometimes fear dogs? What role have dogs played in our understanding of being human? This course explores images of dogs in 20th–21st Italian literature through six main categories: a man and his dog; dogs and inhumanity; dogs and exile; dogs and children; dogs and folktales; dogs and modern bestiary. We discuss and close read a variety of texts, which are representative of different strategies for reflecting on the self and on the ‘other’ by unpacking the unstable relationship between anthropomorphism, personification, and humanization. Hopefully, these texts impel us to understand how profoundly the animal is involved in the human and the human in the animal. This course is part of the “Six Pretty Good Ideas” program. All readings in English. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU 1½ Course cr

* **ITAL 030a / HUMS 033a, Six Pretty Good Knights** Alessandro Giammei
 What do Batman (the Dark Knight) and Orlando (Charlemagne's wise paladin) have in common? What is the thread that connects the Jedi knights of *Star Wars* and those that sat around king Arthur's round table? How did medieval history and Renaissance poetry inform the expanded universes of superhero movies and fantasy literature, along with the inexhaustible fan-fiction that further extends and queers them? Chivalry, as a code of conduct and a network of symbols, inspired some of the most entertaining stories of the so-called Western canon, blurring the divide between high and popular culture. It offered storytellers (and nerds) of all ages a set of norms to question, bend, and break—especially in terms of gender. It challenged the very format of books, re-defining for good concepts like literary irony, seriality, and inter-mediality. This seminar proposes six pretty good trans-historical archetypes of fictional knights, combining iconic figures such as Marvel's Iron Man and Italo Calvino's Agilulfo, Ludovico Ariosto's Bradamante and *Game of Thrones'* Brienne of Tarth, Don Quixote and the Mandalorian. By analyzing together their oaths, weapons, armors, and destinies we aim to develop reading and writing skills to tackle any text, from epic and scholarship to TV-shows and comic-books. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU o Course cr

* **ITAL 110a, Elementary Italian I** Staff
 A beginning course with extensive practice in speaking, reading, writing, and listening and a thorough introduction to Italian grammar. Activities include group and pairs work, role-playing, and conversation. Introduction to Italian culture through readings and films. Conducted in Italian. L1 1½ Course cr

* **ITAL 130a, Intermediate Italian I** Staff
 The first half of a two-term sequence designed to increase students' proficiency in the four language skills and advanced grammar concepts. Authentic readings paired with contemporary films. In-class group and pairs activities, role-playing, and conversation. Admits to ITAL 140. Conducted in Italian. ITAL 120 or equivalent. L3 1½ Course cr

ITAL 150a, Advanced Composition and Conversation: Anna Iacovella
 Discussion of social, political, and literary issues in order to improve active command of the language. Development of advanced reading skills through magazine and newspaper articles, essays, short stories, films, and a novel; enhancement of writing skills through experiments with reviews, essays, creative writing, and business and informal Italian. Classroom emphasis on advanced speaking skills and vocabulary building. Prerequisite: ITAL 140 or equivalent. L5

* **ITAL 162a, Introduction to Italian Literature: From the Duecento to the Renaissance** Simona Lorenzini
 This is the first course in a sequence studying Italian Literature. The course aims to provide an introduction and a broad overview of Italian literature and culture from the Duecento to the Renaissance, specifically focusing on authors such as Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, and literary and artistic movements such as Humanism and Renaissance. These authors and their masterpieces are introduced through readings, works of art, listening materials, videos, and films. Great space is left for in-class discussion and suggestions from students who may take an interest in specific authors or subjects. This course is interactive and open, and the authors mentioned here are only indicative of the path that we follow. At the end of the course, students are able to analyze and critique literary works of different genres and time

periods. The course is conducted in Italian. Prerequisite: ITAL 140 or equivalent. L5, HU

*** ITAL 303b / FILM 457b / LITR 359b, Italian Film from Postwar to Postmodern**
Millicent Marcus

A study of important Italian films from World War II to the present. Consideration of works that typify major directors and trends. Topics include neorealism, self-reflexivity and metacinema, fascism and war, and postmodernism. Films by Fellini, Antonioni, Rossellini, De Sica, Visconti, Pasolini, Bertolucci, Wertmuller, Tornatore, and Moretti. Films in Italian with English subtitles. WR, HU

ITAL 310a / HUMS 180a / LITR 183a, Dante in Translation Staff

A critical reading of Dante's *Divine Comedy* and selections from the minor works, with an attempt to place Dante's work in the intellectual and social context of the late Middle Ages by relating literature to philosophical, theological, and political concerns. No knowledge of Italian required. Course conducted in English. HU TR o Course cr

ITAL 315a / HIST 280a / RLST 160a, The Catholic Intellectual Tradition Staff

Introductory survey of the interaction between Catholicism and Western culture from the first century to the present, with a focus on pivotal moments and crucial developments that defined both traditions. Key beliefs, rites, and customs of the Roman Catholic Church, and the ways in which they have found expression; interaction between Catholics and the institution of the Church; Catholicism in its cultural and sociopolitical matrices. Close reading of primary sources. HU o Course cr

*** ITAL 340a / HUMS 191a / LITR 347a / WGSS 362a, Dangerous Women: Sirens, Singers, Poets and Singers from Sappho to Elena Ferrante** Jane Tylus

Was Sappho a feminist? This course tries to answer that question by analyzing how women's voices have been appropriated by the literary and cultural canon of the west—and how in turn women writers and readers have reappropriated those voices. Students read a generous amount of literary (and in some cases, musical) works, along with a variety of contemporary theoretical approaches so as to engage in conversation about authorship, classical reception, and materiality. Following an introduction to Greek and Roman texts key for problematic female figures such as sirens and sibyls, we turn to two later historical moments to explore how women artists have both broken out of and used the western canon, redefining genre, content, and style in literary creation writ large. How did Renaissance women such as Laura Cereta, Gaspara Stampa, and Sor Juana Inés de la Cruz fashion themselves as authors in light of the classical sources they had at hand? And once we arrive in the 20th and 21st centuries, how do Sibilla Aleramo, Elsa Morante, Anna Maria Ortese, and Elena Ferrante forge a new, feminist writing via classical, queer and/or animal viewpoints? HU TR

*** ITAL 470a and ITAL 471a, Special Studies in Italian Literature** Simona Lorenzini

A series of tutorials to direct students in special interests and requirements. Students meet regularly with a faculty member.

*** ITAL 491a, The Senior Essay** Simona Lorenzini

A research essay on a subject selected by the student in consultation with the faculty adviser.

Japanese (JAPN)

* JAPN 110a, Elementary Japanese I Staff

Introductory course for students with no previous background in Japanese. Development of proficiency in listening, speaking, reading, and writing, including hiragana, katakana, and kanji characters. Introduction to Japanese culture and society. Individual tutorial sessions to improve oral communication skills. L1 RP
1½ Course cr

* JAPN 120b, Elementary Japanese II Staff

Continuation of JAPN 110, with additional materials such as excerpts from television shows, anime, and songs. Introduction of 150 additional kanji. After JAPN 110 or equivalent. L2 RP 1½ Course cr

* JAPN 130a, Intermediate Japanese I Kumiko Nakamura

Continued development in both written and spoken Japanese. Aspects of Japanese culture, such as history, art, religion, and cuisine, explored through text, film, and animation. Online audio and visual aids facilitate listening, as well as the learning of grammar and kanji. Individual tutorial sessions improve conversational skills. After JAPN 120 or equivalent. L3 RP 1½ Course cr

* JAPN 140b, Intermediate Japanese II Staff

Continuation of JAPN 130. After JAPN 130 or equivalent. L4 RP 1½ Course cr

* JAPN 150a, Advanced Japanese I Mika Yamaguchi

Advanced language course that further develops proficiency in reading, writing, speaking, and listening of Japanese. Discussion topics include a variety of Japanese culture and society, such as food, religion, and pop-culture. Individual tutorial sessions to improve oral communication skills. After JAPN 140 or equivalent. L5 RP

* JAPN 151b, Advanced Japanese II Staff

Continuation of JAPN 150. After JAPN 150 or equivalent. L5 RP

* JAPN 156a, Advanced Japanese III Hiroyo Nishimura

Close reading of modern Japanese writing on current affairs, social science, history, and literature. Development of speaking and writing skills in academic settings, including formal speeches, interviews, discussions, letters, e-mail, and expository writing. Interviews of and discussions with native speakers on current issues. Individual tutorial sessions provide speaking practice. After JAPN 151 or equivalent. L5 RP

* JAPN 157b, Advanced Japanese IV Staff

Continuation of JAPN 156. After JAPN 156 or equivalent. L5

JAPN 170a, Introduction to Literary Japanese Lucas Bender

Introduction to the grammar and style of the premodern literary language (*bungotai*) through a variety of texts. After JAPN 151 or equivalent. L5

* JAPN 171b, Readings in Literary Japanese Staff

Close analytical reading of a selection of texts from the Nara through the Tokugawa periods: prose, poetry, and various genres. Introduction to *kanbun*. After JAPN 170 or equivalent. L5

Judaic Studies (JDST)

* **JDST 129a / RLST 284a, Jewish and Christian Bodies: Ritual, Law, Theory** Shraga Bick

This course employs a variety of methodological tools to explore the place and meaning of the body in Judaism and Christianity, by examining several central issues related to the body, such as observing the commandment; Martyrdom; Illness and death; sexuality and gender; and the performance of rituals. HU

JDST 200a / ER&M 219a / HIST 219a / MMES 149a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

* **JDST 213a / HEBR 150a / MMES 150a, Advanced Modern Hebrew: Daily Life in Israel** Orit Yeret

An examination of major controversies in Israeli society. Readings include newspaper editorials and academic articles as well as documentary and historical material. Advanced grammatical structures are introduced and practiced. Conducted in Hebrew. Prerequisite: HEBR 140 or equivalent. L5 RP

JDST 265b / HIST 345b / MMES 148b / RLST 202b, Jews in Muslim Lands from the Seventh to the Sixteenth Centuries Ivan Marcus

Jewish culture and society in Muslim lands from the time of the Prophet Muhammad to that of Suleiman the Magnificent. Topics include Islam and Judaism; Jerusalem as a holy site; rabbinic leadership and literature in Baghdad; Jewish courtiers, poets, and philosophers in Muslim Spain; and the Jews in the Ottoman Empire. HU o Course cr

* **JDST 268a, The Cairo Genizot and their Literatures** Staff

Ancient and medieval Jews did not throw away Hebrew texts they considered sacred, but rather, they deposited and/or buried them in dedicated rooms known as Genizot. The most famous of these depositories was in the Ben Ezra Synagogue in Old Cairo, which contained perhaps the single most important trove ever discovered of Jewish literary and documentary sources from around the Mediterranean basin, sources dating as early as the ninth century and extending into the early modern period. This course introduces students to the Jewish manuscript remains of the medieval Cairo Genizah as well as other important Cairo manuscript caches. Students study the wide variety of types of literary and documentary genres in these collections, and gain familiarity with the history of the Genizah's discovery in the late nineteenth and early twentieth century as well as the acquisition of these manuscripts by institutions outside the Middle East (including Harvard). Readings, including primary Genizah sources, are in English translation, but students with knowledge of Arabic will be offered an additional weekly session providing instruction in reading Judeo-Arabic and centered on readings of sources in the Judeo-Arabic original. HU

* **JDST 270a / HIST 232Ja / HUMS 443a / MMES 342a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness – humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

* **JDST 278b, Interreligious Encounters: Jews, Muslims and Christians in Late Antiquity and the Medieval Period** Staff

The development and spread of Islam and the accompanying diffusion of the Arabic language brought religions in the Near East into contact in unprecedented ways. Judaism, Islam and Christianity were shaped and in turn shaped each other on the basis of the Arabic language, which was the shared medium of written scholarship as well as being the *lingua franca* of daily life. In this course we examine various aspects of this interreligious exchange, focusing on major topics in the dialogue between these three religions against the backdrop of a shared Islamicate culture, representing the pre-Islamic period through the early Ottoman period. Class sessions focus on the close reading of primary sources in translation. Depending on enrollment and student interest, some primary sources may also be read in the original Hebrew, Arabic, and Judeo-Arabic. Students with backgrounds in Arabic are introduced to the Hebrew alphabet for this purpose. HU

* **JDST 286a / FREN 340a / GMAN 232a / HUMS 429a / LITR 232a, Paul Celan** Thomas Connolly

An undergraduate seminar in English exploring the life and work of Paul Celan (1920-1970), survivor of the Shoah, and one of the foremost European poets of the second half of the twentieth century. We will read from his early poems in both Romanian and German, and his published collections including *Der Sand aus den Urnen*, *Mohn und Gedächtnis*, *Von Schelle zu Schelle*, *Sprachgitter*, *Die Niemandrose*, *Atemwende*, *Fadensonnen*, *Lichtzwang*, and *Schneepart*. We will also read from his rare pieces in prose and his correspondence with family, friends, and other intellectuals and poets including Bachmann, Sachs, Heidegger, Char, du Bouchet, Michaux, Ungaretti. A special focus on his poetic translations from French, but also Russian, English, American, Italian, Romanian, Portuguese, and Hebrew. Critical readings draw from Szondi, Adorno, Derrida, Agamben, and others. Readings in English translation or in the original languages, as the student desires. Discussions in English. None. WR, HU

* **JDST 306b / MMES 157b / NELC 157b, Israeli Narratives** Shiri Goren

This course looks at contemporary representations of social, political, and domestic space in Israel through cultural production such as literature, visual work, and art. It focuses on close reading of major Israeli works in translation with attention to how their themes and forms relate to the Israeli condition. Reading and viewing include: Amos Oz's major novel *A Tale of Love and Darkness*, *Anne Frank: The Graphic Diary*, Maya Arad's novella "The Hebrew Teacher," TV show *Arab Labor* and writing by Yehudah Amichai, Etgar Keret, and Sayed Kashua, among others. We discuss topics and theories of personal and collective identity formation, war and peace, ethnicity and

race, migration, nationalism, and gender. No knowledge of Hebrew required. WR, HU
TR

*** JDST 316b / ENGL 456b / HUMS 427b / LITR 348b, The Practice of Literary Translation** Peter Cole

This course combines a seminar on the history and theory of translation (Tuesdays) with a hands-on workshop (Thursdays). The readings lead us through a series of case studies comparing, on the one hand, multiple translations of given literary works and, on the other, classic statements about translation – by translators themselves and prominent theorists. We consider both poetry and prose from the Bible, selections from Chinese, Greek, and Latin verse, classical Arabic and Persian literature, prose by Cervantes, Borges, and others, and modern European poetry (including Pushkin, Baudelaire, and Rilke). Students are expected to prepare short class presentations, participate in a weekly workshop, try their hand at a series of translation exercises, and undertake an intensive, semester-long translation project. Proficiency in a foreign language is required. HU

*** JDST 329b / LITR 235b, Modern Jewish Poets** Peter Cole

This course introduces students to a diverse group of modern Jewish poets – from Gertrude Stein, Moyshe Leyb-Halpern, and Adrienne Rich to Muriel Rukeyser, Yehuda Amichai, Paul Celan, Edmond Jabès, Leonard Cohen, and others. Writing in English, Yiddish, German, Hebrew, and French, these poets gave seminal expression to Jewish life in a variety of modes and permutations, and in the process produced poems of lasting and universal value. The class explores work as art and considers pressing questions of cultural, historical, and political context. All readings are in English. HU

*** JDST 351a / HIST 268Ja / PLSC 466a / RLST 324a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

*** JDST 370b / HIST 226Jb / RLST 231b, How the West Became Antisemitic: Jews and the Formation of Europe 800-1500** Ivan Marcus

Students study how Jews and Christians interacted on a daily basis as medieval Europe became more restrictive and antisemitic, a contributing factor to the Holocaust. In this writing seminar, students discuss a variety of primary sources in class#laws, stories, chronicles, images#while researching and writing their own seminar paper structured by sessions on topics, bibliographies, and outlines. WR, HU

* **JDST 402a / HEBR 167a / MMES 166a, Creative Writing in Hebrew** Orit Yeret
 An advanced language course with focus on creative writing and self-expression. Students develop knowledge of modern Hebrew, while elevating writing skills based on special interests, and in various genres, including short prose, poetry, dramatic writing, and journalism. Students engage with diverse authentic materials, with emphasis on Israeli literature, culture, and society. Prerequisite: HEBR 140 or placement exam. L5 RP

* **JDST 403a / HEBR 169a / LING 165a / MMES 162a, Languages in Dialogue: Hebrew and Arabic** Dina Roginsky
 Hebrew and Arabic are closely related as sister Semitic languages. They have a great degree of grammatical, morphological, and lexical similarity. Historically, Arabic and Hebrew have been in cultural contact in various places and in different aspects. This advanced Hebrew language class explores linguistic similarities between the two languages as well as cultural comparisons of the communities, built on mutual respect. Students benefit from a section in which they gain a basic exposure to Arabic, based on its linguistic similarity to Hebrew. Conducted in Hebrew. Prerequisite: HEBR 140, or placement test, or permission of the instructor. L5, HU RP

* **JDST 405b / HEBR 156b / MMES 216b, Dynamics of Israeli Culture** Shiri Goren
 Controversies in Israeli society as revealed in novels, films, poetry, newspaper articles, Web sites, art, advertisements, and television shows. Themes include migration and the construction of the Sabra character; ethnicity and race; the emergence of the Mizrahi voice; women in Israeli society; private and collective memory; the minority discourse of the Druze and Russian Jews; and Israeli masculinity and queer culture. Conducted in Hebrew. Papers may be written in English or Hebrew. Prerequisite: HEBR 140 or permission of instructor. L5, HU RP

* **JDST 471a or b, Individual Tutorial** Hannan Hever
 For students who wish, under faculty supervision, to investigate an area in Judaic Studies not covered by regular course offerings. May be used for research or for directed reading, but in either case a long essay or several short ones are required. To apply for admission, a student should present a prospectus with bibliography and a letter of support from the faculty member who will direct the work to the director of undergraduate studies.

* **JDST 491a or b and JDST 492a or b, The Senior Essay** Hannan Hever
 The essay, written under the supervision of a faculty member, should be a substantial paper between 6,500 and 8,000 words for one term and between 12,500 and 15,000 words for two terms.

JDST 670b / NELC 805b / PERS 505b, Middle Persian Kevin van Bladel
 This one-term course covers the grammar of Middle Persian, focusing on royal and private inscriptions and the Zoroastrian priestly book tradition. Permission of the instructor required.

JDST 671a / HEBR 524a, Creative Writing in Hebrew Orit Yeret
 An advanced language course with focus on creative writing and self-expression. Students develop knowledge of modern Hebrew, while elevating writing skills based on special interests, and in various genres, including short prose, poetry, dramatic writing, and journalism. Students engage with diverse authentic materials, with emphasis on Israeli literature, culture, and society.

JDST 674a / HEBR 578a, Languages in Dialogue: Hebrew and Arabic Dina Roginsky
 Hebrew and Arabic are closely related as sister Semitic languages. They have a great degree of grammatical, morphological, and lexical similarity. Historically, Arabic and Hebrew have been in cultural contact in various places and in different aspects. This advanced Hebrew language class explores linguistic similarities between the two languages as well as cultural comparisons of the communities, built on mutual respect. Students benefit from a section in which they gain a basic exposure to Arabic, based on its linguistic similarity to Hebrew. Conducted in Hebrew. Prerequisite: HEBR 503, or placement test, or permission of the instructor.

JDST 761a / HIST 596a / MDVL 596a / RLST 773a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings.

JDST 764b / HIST 590b / MDVL 590b / RLST 777b, Jews in Muslim Lands from the Seventh through the Sixteenth Century Ivan Marcus

Introduction to Jewish culture and society in Muslim lands from the Prophet Muhammad to Suleiman the Magnificent. Topics include Islam and Judaism; Jerusalem as a holy site; rabbinic leadership and literature in Baghdad; Jewish courtiers, poets, and philosophers in Muslim Spain; and the Jews in the Ottoman Empire.

JDST 806b / HIST 603b / MDVL 603b / RLST 616b, How the West Became Antisemitic: Jews and the Formation of Europe, 800–1500 Ivan Marcus

This seminar explores how medieval Jews and Christians interacted as religious societies between 800 and 1500.

JDST 861b / HIST 597b / RLST 797b, Twentieth-Century Jewish Politics David Sorkin

This seminar explores major aspects of twentieth-century Jewish politics with an emphasis on new forms of political practice.

JDST 862a / CPLT 644a, The Betrayal of the Intellectuals Hannan Hever

The target of the seminar is to clarify the concept of the intellectual and its political and literary uses during the twentieth and twenty-first centuries. The point of departure is Julien Benda's influential book, *The Betrayal of the Intellectuals* (1927). Benda defines two kinds of intellectuals: the particularists, who are specifically committed to country, party, and economic issues—later thought of as the arena of “identity politics”—and the universalists, committed to more general humanist values. What makes one an intellectual? Does becoming an intellectual depend on specific historical, social, cultural, literary, and political conditions? Is being an intellectual a matter of “talking truth to power” in accordance with universalist values? The course looks at a variety of definitions of what constitutes an intellectual, based on approaches such as Benda's notion of the betrayal of the particularist intellectual, or postcolonial intellectualism. The course then looks at the specificity of intellectualism as it appears in certain contexts through readings from Martin Luther King, Jr., Abraham Joshua Heschel, Jean-Paul Sartre, George Orwell, Naguib Mahfouz, Frantz Fanon, Eleanor Roosevelt, James Baldwin, Angela Davis, Martin Buber, Edward Said, Antonio Gramsci, Herbert

Marcuse, and Toni Morrison. Open to undergraduates with permission of the instructor.

Khmer (KHMR)

* KHMR 110a, Elementary Khmer I Staff

Basic structures of modern standard Cambodian introduced through the integration of communicative practice, reading, writing, and listening comprehension. Introduction to Khmer society and culture. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1
1½ Course cr

* KHMR 120b, Elementary Khmer II Staff

Basic structures of modern standard Cambodian introduced through the integration of communicative practice, reading, writing, and listening comprehension. Introduction to Khmer society and culture. Prerequisite: KHMR 110. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 1½ Course cr

KHMR 130a, Intermediate Khmer I Staff

This course focuses on learning Khmer (the national language of Cambodia). Students communicate in day-to-day conversation using complex questions and answers. The course focuses on reading, writing, speaking, and listening to Khmer words, long sentences, and texts. The course also emphasizes grammar, sentence structure and using words correctly. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Prerequisite: KHMR 120 or equivalent. L3 RP 1½ Course cr

KHMR 140b, Intermediate Khmer II Staff

This course focuses on learning Khmer (the national language of Cambodia). Students communicate in every day conversation using complex questions/answers. The course focuses on reading, writing, speaking, and listening to Khmer words, long sentences, and texts. The course also emphasizes grammar, sentence structure and using words correctly. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. Prerequisite: KHMR 130 or equivalent. L4 RP 1½ Course cr

Kiswahili (SWAH)

SWAH 110a, Beginning Kiswahili I John Wa'Njogu

A beginning course with intensive training and practice in speaking, listening, reading, and writing. Initial emphasis is on the spoken language and conversation. L1
1½ Course cr

SWAH 130a, Intermediate Kiswahili I Veronica Waweru

Further development of students' speaking, listening, reading, and writing skills. Prepares students for further work in literary, language, and cultural studies as well as

for a functional use of Kiswahili. Study of structure and vocabulary is based on a variety of texts from traditional and popular culture. Emphasis on command of idiomatic usage and stylistic nuance. After SWAH 120. L3 1½ Course cr

SWAH 150a, Advanced Kiswahili I John Wa'Njogu

Development of fluency through readings and discussions on contemporary issues in Kiswahili. Introduction to literary criticism in Kiswahili. Materials include Kiswahili oral literature, prose, poetry, and plays, as well as texts drawn from popular and political culture. After SWAH 140. L5

SWAH 170a, Topics in Kiswahili Literature John Wa'Njogu

Advanced readings and discussion with emphasis on literary and historical texts. Reading assignments include materials on Kiswahili poetry, Kiswahili dialects, and the history of the language. After SWAH 160. L5, HU

Korean (KREN)

* **KREN 110a, Elementary Korean I** Staff

A beginning course in modern Korean. Pronunciation, lectures on grammar, conversation practice, and introduction to the writing system (*Hankul*). L1 1½ Course cr

* **KREN 120b, Elementary Korean II** Staff

Continuation of KREN 110. After KREN 110 or equivalent. L2 RP 1½ Course cr

* **KREN 130a, Intermediate Korean I** Staff

Continued development of skills in modern Korean, spoken and written, leading to intermediate-level proficiency. After KREN 120 or equivalent. L3 RP 1½ Course cr

* **KREN 132a, Intermediate Korean for Advanced Learners I** Seungja Choi

Intended for students with some oral proficiency but little or no training in *Hankul*. Focus on grammatical analysis, the standard spoken language, and intensive training in reading and writing. L3 RP 1½ Course cr

* **KREN 140b, Intermediate Korean II** Staff

Continuation of KREN 130. After KREN 130 or equivalent. L4 RP 1½ Course cr

* **KREN 142b, Intermediate Korean for Advanced Learners II** Staff

Continuation of KREN 132. After KREN 132 or equivalent. L4 RP 1½ Course cr

KREN 150a, Advanced Korean I: Korean Language and Culture through K-Pop Music

Angela Lee-Smith

An advanced language course with emphasis on developing vocabulary and grammar, practice reading comprehension, speaking on a variety of topics, and writing in both formal and informal styles. Use storytelling, discussion, peer group activities, audio and written journals, oral presentations, and supplemental audiovisual materials and texts in class. After KREN 140 or equivalent. L5

KREN 151b, Advanced Korean II: Korean Language and Culture through Media

Angela Lee-Smith

This course is content and project-based to further develop integrated language skills—spoken and written, including grammar and vocabulary, as well as intercultural competence through Korean media. Through a variety of media, such as print media, publishing, digital media, cinema, broadcasting (radio, television, podcasting), and

advertising, students explore and reflect on a wide range of topics and perspectives in Korean culture and society. The course learning activities include interactive, interpretive, and presentational communication; critical analysis; creative and authentic language applications in formal/informal contexts. After KREN 150 or equivalent. L5

KREN 152a, Advanced Korean III: Contemporary Life in Korea Hyunsung Lim

This course is an advanced language course designed to further develop language skills through topics related to contemporary Korea, including lifestyle, society, culture, and literature, supplemented with authentic media materials. This course aims to expand students' understanding of Korea while enhancing their multiliteracy. Intended for both non-heritage speakers and heritage speakers. Prerequisite: After KREN 142 or KREN 151, or equivalent. L5

*** KREN 153b, Advanced Korean IV: Korean Sociocultural Practices and Perspectives**
Staff

This course is an interdisciplinary content-based advanced course in modern Korean. It aims to advance language skills in all four areas and cultural competence to communicate with fluency and accuracy. Students build up wide-ranging vocabulary and grammar, while registering and deepening their understanding of cultural aspects through authentic materials and communicative tasks across a variety of topics, such as social, academic, or career interests. (Previously KREN 152). After KREN 152, or with permission of instructor. L5

Latin (LATN)

LATN 110a, Beginning Latin: The Elements of Latin Grammar Staff

Introduction to Latin. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for LATN 120. No prior knowledge of Latin assumed. Preregistration, which is required, takes place at the Academic Fair. See the *Calendar for the Opening Days* or the departmental Web site for details about preregistration. L1 1½ Course cr

LATN 131a, Latin Prose: An Introduction Staff

Close reading of a major work of classical prose; review of grammar as needed. Counts as L4 if taken after LATN 141 or equivalent, or if placed into L4. L3

*** LATN 418a, Cicero on Old Age** Christina Kraus

A reading of Cicero's *De Senectute*, with attention to content and style. Topics covered include: the persona of Cato the Elder; the values and disadvantages of old age; Roman ideas of growth and decay; the dialogue form; translation and quotation practices. Latin reading ability at the L5 level. L5, HU

*** LATN 444a, Roman Consolation Literature: Seneca and Boethius** Rosalie Stoner

In a Greco-Roman context, consolation literature is a genre of writing that attempts to comfort someone for a loss. By drawing on commonplace philosophical arguments and rhetorical exhortations, consolations offer a kind of therapy for those affected by the death or exile of a loved one, or by one's own loss of status. This advanced Latin course introduces students to two important prose texts from the Roman tradition of consolation literature: Seneca the Younger's *Ad Helviam* (first century CE) and Boethius' *De Consolatione Philosophiae* (sixth century CE). Seneca's consolation, addressed to his mother, attempts to comfort her for his own exile, while Boethius' consolation represents a dialogue between the author and the quasi-divine figure of

Philosophia, who rebukes Boethius for mourning his loss of fortune and leads him to embrace a cosmic perspective on his suffering. While continuing to build fluency in reading Latin prose at the advanced level, we explore relevant secondary scholarship on these texts and familiarize ourselves with an oft-neglected genre that opens up broader questions about the roles that literature and philosophy can play in addressing emotional and psychological challenges. L5

*** LATN 477a, Ovid's Poetic Career** Kirk Freudenburg

An advanced Latin course (L5), focused on the poetic career of the Roman poet, Ovid.

Readings are drawn from all the major works of Ovid, following their publication over the course of his long career. The course is designed to take students beyond matters of grammar, vocabulary, and syntax (though these are stressed) into the complex workings of Latin poetry (including metrics, stylistics, and advanced Latin syntax), and the larger political and social contexts of one of antiquity's greatest literary careers. Class sessions are devoted to close reading of Ovid's Latin, with strong emphasis on grammar and syntax; analysis of Ovid's art; discussion of cultural context; discussion of Ovid in reception and in modern scholarship. This course is designed for students who are proficient in Latin, having had at least 3-4 years of high school Latin, or a minimum of two full years of Latin at the college level. L5, HU

Latin American Studies (LAST)

LAST 100a / HIST 305a, Introduction to Latin American Studies: History, Culture and Society Maria Aguilar

What is Latin America? The large area we refer to as Latin America is not unified by a single language, history, religion, or type of government. Nor is it unified by a shared geography or by the prevalence of a common language or ethnic group. Yet Latin America does, obviously, exist. It is a region forged from the merging of diverse cultures, historical experiences, and processes of resistance. This course provides an overview of Latin America and the Caribbean from the 16th century up to the present. While the class aims to provide students with an understanding of the region, due to time constraints, it focuses primarily on the experiences and histories of selected countries. The course introduces students to some of the most important debates about the region's history, politics, society, and culture. The course follows a chronological structure while also highlighting thematic questions. Drawing on academic readings, films, music, art, literature, testimony, oral histories, and writings from local voices the class explores the political transformation of the region, as well as topics related to ethnic and racial identity, revolution, social movements, religion, violence, military rule, democracy, transition to democracy, and migration. HU o Course cr

LAST 200a / PLSC 382a, Introduction to Latin American Politics Staff

Introduction to major theories of political and economic change in Latin America, and to the political and economic systems of particular countries. Questions include why the continent has been prone to unstable democratic rule, why countries in the region have adopted alternatively state-centered and market-centered economic models, and, with the most recent wave of democratization, what the remaining obstacles might be to attaining high-quality democracy. SO o Course cr

LAST 214a / AFAM 186a / PLSC 378a / SOCY 170a, Contesting Injustice Staff
 Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. SO
 o Course cr

* **LAST 222a or b / SPAN 222a or b, Legal Spanish** Mercedes Carreras
 An introduction to Spanish and Latin American legal culture with a focus on the specific traits of legal language and on the development of advanced language competence. Issues such as human rights, the death penalty, the jury, contracts, statutory instruments, and rulings by the constitutional courts are explored through law journal articles, newspapers, the media, and mock trials. Enrollment limited to 18. A maximum of one course in the 200-230 range may count as an elective toward the Spanish major. L5

* **LAST 223a / SPAN 223a, Spanish in Film: An Introduction to the New Latin American Cinema** Margherita Tortora
 Development of proficiency in Spanish through analysis of critically acclaimed Latin American films. Includes basic vocabulary of film criticism in Spanish as well as discussion and language exercises. Enrollment limited to 18. L5

LAST 226a / ER&M 287a / EVST 229a / SPAN 230a, Reading Environments: Nature, Culture, and Agency Luna Najera
 Extreme weather, proliferation of species extinctions, climate migration, and the outbreak of pandemics can all be understood as instances of *koyaanisqatsi*, the Hopi word for life out of balance. They may also be viewed as indications that we are living in the age of the Anthropocene, a term in the natural and social sciences that acknowledges that human activities have had a radical geological impact on the planet since the onset of the Industrial revolution. In this course we study relations between humans and other-than-humans to understand how we arrived at a life out of balance. We inquire into how binary distinctions between nature and culture are made, sustained, or questioned through a diversity of meaning-making practices in Spanish, Latin American, and indigenous literature, visual culture, and material culture. The indigenous artifacts studied include Popol Vuh, poetry, petroglyphs, and documentaries by indigenous people of the Amazon, which provide opportunities for asking pressing questions: To what extent does the nature and culture binary foreclose alternative possibilities for imagining ourselves and our relation to the world? Are there ways of perceiving our world and ourselves that bypass such binaries and if so, what are they? In the final weeks of the course, we draw from our insights to investigate where the nature/culture binary figures in present discussions of environmental catastrophes and rights of nature movements in Latin America. Taught in Spanish. Prerequisite: SPAN 140 or 145, or in accordance with placement results. L5

* **LAST 227a / SPAN 227a, Creative Writing** Maria Jordan
 An introduction to the craft and practice of creative writing (fiction, poetry, and essays). Focus on the development of writing skills and awareness of a variety of genres and techniques through reading of exemplary works and critical assessment of student work. Emphasis on the ability to write about abstract ideas, sentiments, dreams,

and the imaginary world. Enrollment limited to 18. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

*** LAST 228a / ER&M 278a / SPAN 228a, Borders & Globalization in Hispanophone Cultures** Luna Najera

The borders that constitute the geographical divisions of the world are contingent, but they can have enormous ordering power in the lives of people and other beings. Human-made borders can both allow and disallow the flow of people and resources. Like geographical borders, social borders such as race, caste, class, and gender can form and perpetuate privileged categories of humans that restrict access of excluded persons to natural resources, education, security, and social mobility. Thus, bordering can differentially value human lives. Working with the premise that borders are sites of power, in this course we study bordering and debordering practices in the Hispanic cultures of Iberia, Latin America, and North America, from the 1490s to the present. Through analyses of a wide range of texts students will investigate the multiple ways in which social, cultural, and spatial borders are initiated, expressed, materialized, and contested. Some of the questions that will guide our conversations are: What are social borders and what are the processes through which they perdure? How do the effects of local practices that transcend borders (e.g., environmental pollution, deforestation) change our understanding of borders? How does globalization change discourse about borders? (To be conducted in Spanish.) Prerequisite: SPAN 140 or 145, or in accordance with placement results. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

*** LAST 243a / SPAN 243a, Advanced Spanish Grammar** Terry Seymour

A comprehensive, in-depth study of grammar intended to improve students' spoken and written command of Spanish. Linguistic analysis of literary selections; some English-to-Spanish translation. Enrollment limited to 18. L5

LAST 244b / SPAN 244b, Writing in Spanish Margherita Tortora

Intensive instruction and practice in writing as a means of developing critical thinking. Recommended for students considering courses in literature. Analysis of fiction and nonfiction forms, techniques, and styles. Classes conducted in a workshop format. L5

*** LAST 255a / ANTH 255a / ARCG 255a, Inca Culture and Society** Richard Burger

The history and organization of the Inca empire and its impact on the nations and cultures it conquered. The role of archaeology in understanding the transformation of Andean lifeways; the interplay between ethnohistoric and archaeological approaches to the subject. SO

*** LAST 262b / SPAN 262b, Studies in Spanish Literature II** Staff

An introduction to Spanish prose, drama, and lyric poetry from the eighteenth century to the present, centered on the conflict between modernity and tradition and on the quest for national identity. Texts by Gustavo Adolfo Bécquer, Emilia Pardo Bazán, Antonio Machado, Federico García Lorca, Ramón Sender, and Ana María Matute, among others. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. L5, HU

*** LAST 266a / SPAN 266a, Studies in Latin American Literature I** Lisa Voigt

Cultural encounters in the New World as interpreted by authors of native American (Aztec and Inca) cultural traditions, the Spanish conquistadors and friars who encountered them and their heirs, and the Mexican creole nun (the now-world-famous

Sor Juana Inés de la Cruz) who gave voice to some of their traditions as she created a space for her own writing in the literary world. Their resonance and legacy today. L5, HU

LAST 267b / LITR 258b / SPAN 267b, Studies in Latin American Literature II Lisa Voigt

An introduction to Latin American literature from the nineteenth century to the present. Works by Borges, García Márquez, Paz, Neruda, Cortázar, and others. L5, HU

* **LAST 305a / ER&M 285a / SOCY 305a, Latin American Immigration to the United States: Past, Present, and Future** Angel Escamilla Garcia

Immigration from Latin America is the one of the most important and controversial issues in the United States today. The family separation crisis, the infamous border wall, and the Dream Act dominate political debate. Latinos – numbering more than 60 million in the U.S. – are a large, heterogeneous, and growing group with a unique social, political, and cultural history. This course explores key current issues in immigration, as well as the history of Latin American migration to the U.S., with the aim of providing students the tools necessary to thoughtfully participate in current debates. SO

* **LAST 318b / ARCH 341b / GBLB 253b / URBN 341b, Globalization Space** Staff
Infrastructure space as a primary medium of change in global polity. Networks of trade, energy, communication, transportation, spatial products, finance, management, and labor, as well as new strains of political opportunity that reside within their spatial disposition. Case studies include free zones and automated ports around the world, satellite urbanism in South Asia, high-speed rail in Japan and the Middle East, agripoles in southern Spain, fiber optic submarine cable in East Africa, spatial products of tourism in North Korea, and management platforms of the International Organization for Standardization. HU o Course cr

* **LAST 334a / ER&M 364a / HIST 334Ja, Ethnicity, Nationalism, and the Politics of Knowledge in Latin America** Marcela Echeverri Munoz

Examination of ethnicity and nationalism in Latin America through the political lens of social knowledge. Comparative analysis of the evolution of symbolic, economic, and political perspectives on indigenous peoples, peasants, and people of African descent from the nineteenth century to the present. Consideration of the links between making ethnic categories in the social sciences and in literature and the rise of political mechanisms of participation and representation that have characterized the emergence of cultural politics. WR, HU RP

* **LAST 351a / SPAN 350a, Borges: Literature and Power** Anibal González-Pérez
An introduction to the work of Jorge Luis Borges, focusing on the relation between literature and power as portrayed in selected stories, essays, and poems. Topics include Borges and postmodernity; writing and ethics; and Borges's politics. Works include *Ficciones*, *Otras inquisiciones*, *El aleph*, *El hacedor*, *El informe de Brodie*, and *Obra poética*. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the Spanish major. L5, HU

LAST 355a / HIST 355a, Colonial Latin America Staff

A survey of the conquest and colonization of Latin America from pre-Columbian civilizations through the movements for independence. Emphasis on social and

economic themes and the formation of identities in the context of multiracial societies.

HU o Course cr

* **LAST 357b / HIST 380Jb, Revolutionary Mexico** Staff

The Mexican revolution erupted as a rebellion to overthrow president Porfirio Diaz after thirty years of oppressive rule, but it soon grew into a fierce conflict between warring factions to define the country's future. For certain revolutionaries, like Emiliano Zapata, this was a battle for the survival of their villages and the recovery of ancestral lands claimed by wealthy elites. For urban liberals, it was a fight to establish a democratic and secular state. Others yet- including industrial laborers, Indigenous leaders, and feminist activists-understood the revolution as a struggle against global capitalism and structures of power, like those of race and gender. As the defining event of modern Mexican history, the revolution casts a long shadow. Engaging in our own process of historical investigation, we ask: How did the revolution transform Mexican society? How do we make sense of the multiplicity of revolutionary experiences? How have Mexicans from across all sectors of society constructed their own historical narratives about the revolution, and what is at stake with their competing interpretations? WR, HU

* **LAST 359a / FILM 321a / HUMS 435a / LITR 379a, Radical Cinemas in the Global Sixties** Moira Fradinger and Lorenz Hegel

"1968" has become a cipher for a moment of global turmoil, social transformation and cultural revolution. This class explores the "long global sixties" through cinema produced across continents. At the height of the Cold War between two blocks in the "East" and the "West," the "Third World" emerged as a radical political project alternative to a world order shaped by centuries of colonialism, imperialism, slavery, and capitalist exploitation. Liberation, emancipation, independence, anticolonialism, decolonization, and revolution became key words in the global political discourse. Leaders from Africa, Asia, and Latin America created a new international platform, the Non-Aligned Movement (NAM) that challenged the Cold War bi-polarity. Radical filmmakers who belong in this period experimented with strategies of storytelling and of capturing reality, calling into question rigid distinctions between "documentary" and "fiction" and "art and politics." The goal was not to "show" reality, but to change it. We study a world-wide range of examples that involve filmmakers' collaborations across The Americas, Western Europe, North Africa, South and South-East Asia. Taught in English; films are subtitled but knowledge of other languages may be useful. HU

* **LAST 371b / SPAN 371b, Science and Fiction in Spanish American Narrative** Anibal González-Pérez

A study of the speculative incorporation of scientific ideas and themes in contemporary Spanish American fiction from Argentina, Chile, Cuba, Dominican Republic, Ecuador, and Peru. Readings and discussions of early and mid-20th-century precursors, such as Jorge Luis Borges, Adolfo Bioy Casares, Leopoldo Lugones, Pablo Palacio, and Clemente Palma; of late-20th to early 21st-century examples of "technowriting" in Samantha Schweblin, Jorge Volpi, and Alejandro Zambra, and of utopias, dystopias and possible futures in Jorge Adolph, Jorge Baradit, Hugo Correa, Angélica Gorodischer, Francisco Ortega, Yoss, Yuri Herrera, and Carlos Yushimito. Related themes include: post-humanism, ecofiction, and sociopolitical satire. Course is taught in Spanish. Prerequisite: L4 Spanish or higher. L5, HU

* **LAST 372b / ER&M 342b / HIST 372Jb, Revolutionary Change and Cold War in Latin America** Greg Grandin

Analysis of revolutionary movements in Latin America against the backdrop of the Cold War. Critical examination of popular images and orthodox interpretations. An interdisciplinary study of the process of revolutionary change and cold war at the grassroots level. WR, HU

* **LAST 386a / GLBL 215a / MGRK 237a / PLSC 375a / SOCY 389a, Populism** Paris Aslanidis

Investigation of the populist phenomenon in party systems and the social movement arena. Conceptual, historical, and methodological analyses are supported by comparative assessments of various empirical instances in the US and around the world, from populist politicians such as Donald Trump and Bernie Sanders, to populist social movements such as the Tea Party and Occupy Wall Street. WR, SO

* **LAST 394a / LITR 294a / PORT 394a, World Cities and Narratives** Kenneth David Jackson

Study of world cities and selected narratives that describe, belong to, or represent them. Topics range from the rise of the urban novel in European capitals to the postcolonial fictional worlds of major Portuguese, Brazilian, and Lusophone cities. Conducted in English. WR, HU TR

* **LAST 491a, The Senior Essay** Staff

Preparation of a research paper about forty pages long under the direction of a faculty adviser, in either the fall or the spring term. Students write on subjects of their own choice. During the term before the essay is written, students plan the project in consultation with a qualified adviser or the director of undergraduate studies. The student must submit a suitable project outline and bibliography to the adviser and the director of undergraduate studies by the third week of the term. The outline should indicate the focus and scope of the essay topic, as well as the proposed research methodology. Permission may be given to write a two-term essay after consultation with an adviser and the director of undergraduate studies and after submission of a project statement. Only those who have begun to do advanced work in a given area are eligible. The requirements for the one-term senior essay apply to the two-term essay, except that the two-term essay should be substantially longer.

Linguistics (LING)

* **LING 033a / ENGL 033a, Words, Words, Words: The Structure and History of English Words** Peter Grund

Meggings. Perpendicular. Up. Ain't. Eerily. Bae. The. These are all words in the English language, but, like all words, they have different meanings, functions, and social purposes; indeed, the meaning and function may be different for the same word depending on the context in which we use it (whether spoken or written). In this course, we explore the wonderful world of words. We look at how we create new words (and why), how we change the meaning of words, and how words have been lost (and revived) over time. As we do so, we look at debates over words and their meanings now (such as the feeling by some that *ain't* is not a word at all) and historically (such as the distaste for *subpeditals* for 'shoes' in the sixteenth century), and how words can be manipulated to insult, hurt, and discriminate against others. We look at a wide

range of texts by well-known authors (such as Shakespeare) as well as anonymous online bloggers, and we make use of online tools like the Google Ngram viewer and the Corpus of Historical American English to see how words change over time. At the end of the course, I hope you see how we make sophisticated use of words and how studying them opens up new ways for you to understand why other people use words the way they do and how you can use words for various purposes in your own speech and writing. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

* **LING 107a / ER&M 207a, Linguistic Diversity & Endangerment** Claire Bower
 “How many languages are there in the world?”—what does this question even mean? What would a satisfying answer look like? This class comprises a geographical and historical survey of the world’s languages and attends to how languages can differ from one another. According to UNESCO, more than half of world languages (virtually all of which are spoken by indigenous communities) will have gone extinct by the end of the century. We interrogate notions like language endangerment, shift and death, and we consider the threats that these pose to global linguistic diversity. There is a striking correlation between the geographic distribution of linguistic and biological diversity, although proportionally, far more languages are endangered than biological species; the question of *how* (and *why?* and *whether?*) to respond to that situation is a matter of serious import for the 21st Century. This course surveys the various ways in which the world’s linguistic diversity and language ecologies can be assessed—and discusses the serious threats to that diversity, why this might be a matter of concern, and the principle of linguistic human rights. Students have the opportunity to investigate a minority language in some depth and report on its status with respect to the range of issues discussed in class. SO

LING 110a, Language: Introduction to Linguistics Jim Wood

This is a course about language as a window into the human mind and language as glue in human society. Nature, nurture, or both? Linguistics is a science that addresses this puzzle for human language. Language is one of the most complex of human behaviors, but it comes to us without effort. Language is common to all societies and is typically acquired without explicit instruction. Human languages vary within highly specific parameters. The conventions of speech communities exhibit variation and change over time within the confines of universal grammar, part of our biological endowment. The properties of universal grammar are discovered through the careful study of the structures of individual languages and comparison across languages. This course introduces analytical methods that are used to understand this fundamental aspect of human knowledge. In this introductory course students learn about the principles that underly all human languages, and what makes language special. We study language sounds, how words are formed, how humans compute meaning, as well as language in society, language change, and linguistic diversity. SO o Course cr

* **LING 115a / SKRT 110a, Introductory Sanskrit I** Aleksandar Uskokov

An introduction to Sanskrit language and grammar. Focus on learning to read and translate basic Sanskrit sentences in Devanagari script. No prior background in Sanskrit assumed. L1 1½ Course cr

LING 110b, How to Create a Language: Constructed Language and Natural Language
Staff

This course explores how languages get invented, drawing inspiration both from well-known constructed/invented languages like Klingon, Dothraki, and Esperanto, as well as from natural languages. Students learn about the primary linguistic aspects of natural language—Phonetics, Phonology, Morphology, Syntax, and Semantics—and learn how those aspects of grammar are used in various constructed languages. Students, working in small groups, create and describe a new language (or at least a fragment of a new language) over the course of the semester, using the principles learned in class. so

LING 125b / SKRT 120b, Introductory Sanskrit II Aleksandar Uskokov
Continuation of SKRT 110. Focus on the basics of Sanskrit grammar; readings from classical Sanskrit texts written in Devanagari script. After SKRT 110. L2 1½ Course cr

LING 138a / SKRT 130a, Intermediate Sanskrit I Aleksandar Uskokov
The first half of a two-term sequence aimed at helping students develop the skills necessary to read texts written in Sanskrit. Readings include selections from the *Hitopadesa*, *Kathasaritsagara*, *Mahabharata*, and *Bhagavadgita*. After SKRT 120 or equivalent. L3

* **LING 150a / ENGL 150a, Old English** Emily Thornbury
An introduction to the language, literature, and culture of earliest England. A selection of prose and verse, including riddles, heroic poetry, meditations on loss, a dream vision, and excerpts from *Beowulf*, which are read in the original Old English. HU

* **LING 165a / HEBR 169a / JDST 403a / MMES 162a, Languages in Dialogue: Hebrew and Arabic** Dina Roginsky
Hebrew and Arabic are closely related as sister Semitic languages. They have a great degree of grammatical, morphological, and lexical similarity. Historically, Arabic and Hebrew have been in cultural contact in various places and in different aspects. This advanced Hebrew language class explores linguistic similarities between the two languages as well as cultural comparisons of the communities, built on mutual respect. Students benefit from a section in which they gain a basic exposure to Arabic, based on its linguistic similarity to Hebrew. Conducted in Hebrew. Prerequisite: HEBR 140, or placement test, or permission of the instructor. L5, HU RP

* **LING 191a / GMAN 310a, “Sprachkrise” – Philosophies & Language Crises** Sophie Schweiger
The crisis of language predates the invention of ChatGPT (who may or may not have helped write this syllabus). This course delves into the concept of language crises and its long history from a philosophical and literary perspective, examining how crises of language are represented in literature and how they reflect broader philosophical questions about language, identity, and power. We explore different philosophical approaches to language, such as the history of language and philology (Herder, Humboldt, Nietzsche), structuralism and post-structuralism (Saussure), analytical and pragmatic philosophies (Wittgenstein), phenomenology and deconstruction (Heidegger), and analyze how these theories shape our understanding of language while simultaneously evoking its crisis. The course also examines how such language crises are represented and produced in literature and the arts; how authors and artists approach the complexities of language loss, and how crises help birth alternative

systems of signification. Through close readings of literary texts by Hofmannsthal, Musil, Bachmann, et. al., we analyze the symbolic and metaphorical significance of language crises, as well as the ethical and political implications of language loss for (cultural) identity. Experimental use of language such as DaDa artwork, performance cultures, and “Sprachspiel” poetry by the “Wiener Gruppe,” as well as contemporary KI/AI literature, further complement the theoretical readings. By exploring language crises through the lens of philosophy and literature, we gain a deeper understanding of the role of language – and its many crises – in shaping our understanding of ourselves and our communities. HU

* **LING 200a, Experimentation in Linguistics** Maria Pinango

Principles and techniques of experimental design and research in linguistics. Linguistic theory as the basis for framing experimental questions. The development of theoretically informed hypotheses, notions of control and confounds, human subject research, statistical analysis, data reporting, and dissemination. Prerequisite: LING 110, 117, 220, CGSC 110, or PSYC 110, or permission of instructor. SO

* **LING 212a, Linguistic Change** Claire Bower

How languages change, how we study change, and how language relates to other areas of society. This seminar is taught through readings chosen by instructor and students, on topics of interest. Prerequisite: LING 112 or equivalent. WR, SO

LING 217a / EDST 237a / PSYC 317a, Language and Mind Maria Pinango

The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use. SO RP o Course cr

LING 220a / PSYC 318a, Phonetics I Jason Shaw

Each spoken language composes words using a relatively small number of speech sounds, a subset of the much larger set of possible human speech sounds. This course introduces tools to describe the complete set of speech sounds found in the world's spoken languages. It covers the articulatory organs involved in speech production and the acoustic structure of the resulting sounds. Students learn how to transcribe sounds using the International Phonetic Alphabet, including different varieties of English and languages around the world. The course also introduces sociophonetics, how variation in sound patterns can convey social meaning within a community, speech perception, and sound change. SO o Course cr

LING 224a, Mathematics of Language Robert Frank

Study of formal systems that play an important role in the scientific study of language. Exploration of a range of mathematical structures and techniques; demonstrations of their application in theories of grammatical competence and performance including set theory, graphs and discrete structures, algebras, formal language, and automata theory. Evaluation of strengths and weaknesses of existing formal theories of linguistic knowledge. QR, SO o Course cr

* **LING 234a, Quantitative Linguistics** Claire Bower

This course introduces statistical methods in linguistics, which are an increasingly integral part of linguistic research. The course provides students with the skills

necessary to organize, analyze, and visualize linguistic data using R, and explains the concepts underlying these methods, which set a foundation that positions students to also identify and apply new quantitative methods, beyond the ones covered in this course, in their future projects. Course concepts are framed around existing linguistic research, to help students design future research projects and critically evaluate academic literature. Assignments and in-class activities involve a combination of hands-on practice with quantitative tools and discussion of analyses used in published academic work. The course also include brief overviews of linguistic topics as a foundation for discussing the statistical methods used to investigate them. QR, SO

* **LING 235a, Phonology II** Natalie Weber

Topics in the architecture of a theory of sound structure. Motivations for replacing a system of ordered rules with a system of ranked constraints. Optimality theory: universals, violability, constraint types and their interactions. Interaction of phonology and morphology, as well as the relationship of phonological theory to language acquisition and learnability. Opacity, lexical phonology, and serial versions of optimality theory. Prerequisite: LING 232 or permission of instructor. SO RP

* **LING 236a, Articulatory Phonology** Jason Shaw

Study of experimental methods to record articulatory movements using electromagnetic articulography and/or ultrasound technologies and analytical approaches for relating articulatory movements to phonological structure. Hands-on training in laboratory techniques are paired with discussion of related experimental and theoretical research. Prerequisites: LING 220 and LING 232 or permission of instructor. SO

LING 253a, Syntax I Raffaella Zanuttini

If you knew all the words of a language, would you be able to speak that language? No, because you'd still need to know how to put the words together to form all and only the grammatical sentences of that language. This course focuses on the principles of our mental grammar that determine how words are put together to form sentences. Some of these principles are shared by all languages, some differ from language to language. The interplay of the principles that are shared and those that are distinct allows us to understand how languages can be very similar and yet also very different at the same time. This course is mainly an introduction to syntactic theory: it introduces the questions that the field asks, the methodology it employs, some of the main generalizations that have been drawn and results that have been achieved. Secondly, this course is also an introduction to scientific theorizing: what it means to construct a scientific theory, how to test it, and how to choose among competing theories. SO
o Course cr

LING 263a, Semantics I Claire Bowers

Introduction to truth-conditional compositional semantics. Set theory, first- and higher-order logic, and the lambda calculus as they relate to the study of natural language meaning. Some attention to analyzing the meanings of tense/aspect markers, adverbs, and modals. QR, SO
o Course cr

LING 271a / PHIL 271a, Philosophy of Language Jason Stanley

An introduction to contemporary philosophy of language, organized around four broad topics: meaning, reference, context, and communication. Introduction to the use of logical notation. HU
o Course cr

* **LING 324a, Sound Change** Claire Bower

Topics in the foundations of sound change. Perception, production, and social factors. Seeds of sound change, mechanisms, and means of study. Overview of sound change research, including experimental, computational, simulation, evolutionary, and comparative methods. Prerequisite: LING 112 or permission of instructor. LING 220 and LING 232 are recommended but not required so

* **LING 385a, Topics in Computational Linguistics: Language Models and Linguistic Theory** Robert Frank

A linguistically-guided exploration of the strengths and weaknesses of large language models (such as GPT-4 and its brethren), which form the foundation of current AI systems. What is the structure of these models and how are they trained? What do they know about language and how can we assess it? To what degree is the existence of these models cause for a re-evaluation of existing theories of linguistic structure? Prerequisites: At least one course covering the foundations of deep learning (CPSC 452, CPSC 477, EENG 439, LING 380, S&DS 265) and at least one course on linguistic theory (LING 232, LING 253, LING 263). so

* **LING 391a, The Syntax of Coordination** Jim Wood

We discuss the syntax of coordination itself, along with a sample of the myriad constructions that coordination gives rise to, such as across-the-board dependencies, right-node raising, coordinate object drop, conjunction reduction and others. We discuss the special licensing of null arguments in coordinate structures, and whether heads can be coordinated, at or below the word level. Prerequisite: LING 253 Syntax I, or equivalent experience. so

* **LING 398a, Plurality, Optional Plurality, Pluractionality** Veneeta Dayal

The concept of singularity vs. plurality is arguably universal, yet its morpho-syntactic expression is subject to a great deal of cross-linguistic variation. Many languages have one form for singular reference and another for plural. English, for example, canonically uses the unmarked form of a noun for singular reference and a plural marked form for plural reference, at least with count nouns: *dog* vs. *dog+s*. In many languages, the base form itself can be used to refer to a plurality but there is nevertheless a form that can be added to ensure plurality. Mandarin, for example, uses the base form itself to refer to singularities as well as pluralities but the addition of the plural marker rules out the possibility of singular reference: *gou* “the dog/the dogs” vs. *gou-men* “the dogs”. Finally, there are languages, such as Cuzco Quechua, in which the verb has a singular and a plural form, such that the singular form refers to a single event while the plural form refers to a plurality of events. In this course we discuss the semantic underpinnings of these three types of plural morphology, plural marking as in English -s, optional plurality as in Mandarin -men, and pluractionality as in Quechua plural marked verbs. Prerequisite: LING 263/LING 663 or permission of the instructor. so

* **LING 490a, Research Methods in Linguistics** Raffaella Zanuttini

Development of skills in linguistics research, writing, and presentation. Choosing a research area, identifying good research questions, developing hypotheses, and presenting ideas clearly and effectively, both orally and in writing; methodological issues; the balance between building on existing literature and making a novel contribution. Prepares for the writing of the senior essay.

Mathematics (MATH)

MATH 108a, Estimation and Error C.J. Argue

A problem-based investigation of basic mathematical principles and techniques that help make sense of the world. Estimation, order of magnitude, approximation and error, counting, units, scaling, measurement, variation, simple modeling. Applications to demographics, geology, ecology, finance, and other fields. Emphasis on both the practical and the philosophical implications of the mathematics. Permission of instructor required. Enrollment limited to 25 students who have not previously taken a high school or college calculus course. QR

* **MATH 110a, Introduction to Functions and Calculus I** John Hall

Comprehensive review of precalculus, limits, differentiation and the evaluation of definite integrals, with applications. Precalculus and calculus topics are integrated. Emphasis on conceptual understanding and problem solving. Successful completion of MATH 110 and 111 is equivalent to MATH 112. No prior acquaintance with calculus is assumed; some knowledge of algebra and precalculus mathematics is helpful. The course includes mandatory weekly workshops, scheduled at the beginning of term. Placement into MATH 110 on the Mathematics placement exam is required. Enrollment in MATH 110 is through preference selection, except during April registration (where sections are open to everyone who has placement in the course). QR

* **MATH 111b, Introduction to Functions and Calculus II** John Hall

Continuation of MATH 110. Comprehensive review of precalculus, limits, differentiation and evaluation of definite integrals, with applications. Precalculus and calculus topics are integrated. Emphasis on conceptual understanding and problem solving. Successful completion of both MATH 110 and 111 is equivalent to MATH 112. The course includes mandatory weekly workshops, scheduled at the beginning of term. Prerequisite: MATH 110. Enrollment in MATH 111 is through preference selection. QR

* **MATH 112a or b, Calculus of Functions of One Variable I** Staff

This course introduces the notions of derivative and of definite integral for functions of one variable, with some of their physical and geometrical motivation and interpretations. Emphasis is placed on acquiring an understanding of the concepts that underlie the subject, and on the use of those concepts in problem solving. This course also focuses on strategies for problem solving, communication and logical reasoning. Placement into MATH 112 on the Mathematics placement exam is required. No prior acquaintance with calculus or computing assumed. May not be taken after MATH 111. Enrollment in MATH 112 is through preference selection, except during April registration (where sections are open to everyone who has placement in the course). QR

* **MATH 115a or b, Calculus of Functions of One Variable II** Staff

A continuation of MATH 112, this course develops concepts and skills at the foundation of the STEM disciplines. In particular, we introduce Riemann sums, integration strategies, series convergence, and Taylor polynomial approximation. We use these tools to measure lengths of parametric curves, areas of polar regions and volumes of solids of revolution, and we explore applications of calculus to other disciplines including physics, economics, and statistics. MATH 115 also focuses on strategies for problem solving, communication, and logical reasoning. Prerequisite: MATH 111 or

MATH 112, or placement into MATH 115 on the Mathematics placement exam. May not be taken after MATH 116. Enrollment in MATH 115 is through preference selection, except during April registration (in this case sections are open to everyone who has placement in the course). QR

*** MATH 116a, Mathematical Models in the Biosciences I: Calculus Techniques** John Hall

Techniques and applications of integration, approximation of functions by polynomials, modeling by differential equations. Introduction to topics in mathematical modeling that are applicable to biological systems. Discrete and continuous models of population, neural, and cardiac dynamics. Stability of fixed points and limit cycles of differential equations. Prerequisite: MATH 112, or placement into MATH 115/116 on the Mathematics placement exam. May not be taken after MATH 115. QR

*** MATH 118a or b, Introduction to Functions of Several Variables** Staff

A combination of linear algebra and differential calculus of several variables. Matrix representation of linear equations, Gauss elimination, vector spaces, independence, basis and dimension, projections, least squares approximation, and orthogonality. Three-dimensional geometry, functions of two and three variables, level curves and surfaces, partial derivatives, maxima and minima, and optimization. Intended for students in the social sciences, especially Economics. May not be taken after MATH 120 or 222. Prerequisite: MATH 112. QR

*** MATH 120a, Calculus of Functions of Several Variables** Su Ji Hong

Analytic geometry in three dimensions, using vectors. Real-valued functions of two and three variables, partial derivatives, gradient and directional derivatives, level curves and surfaces, maxima and minima. Parametrized curves in space, motion in space, line integrals; applications. Multiple integrals, with applications. Divergence and curl. The theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or 116, or placement into MATH 120 on the Mathematics placement exam. May not be taken after MATH 121. Enrollment in MATH 120 is through preference selection, except during April registration (where sections are open to everyone who has placement in the course). QR

MATH 222a or b / AMTH 222a or b, Linear Algebra with Applications Staff

Matrix representation of linear equations. Gauss elimination. Vector spaces. Linear independence, basis, and dimension. Orthogonality, projection, least squares approximation; orthogonalization and orthogonal bases. Extension to function spaces. Determinants. Eigenvalues and eigenvectors. Diagonalization. Difference equations and matrix differential equations. Symmetric and Hermitian matrices. Orthogonal and unitary transformations; similarity transformations. Students who plan to continue with upper level math courses should instead consider MATH 225 or 226. After MATH 115 or equivalent. May not be taken after MATH 225 or 226. QR

MATH 225a or b, Linear Algebra Staff

An introduction to the theory of vector spaces, matrix theory and linear transformations, determinants, eigenvalues, inner product spaces, spectral theorem. The course focuses on conceptual understanding and serves as an introduction to writing mathematical proofs. For an approach focused on applications rather than proofs, consider MATH 222. Students with a strong mathematical background or

interest are encouraged to consider MATH 226. Prerequisite: MATH 115 or equivalent. May not be taken after MATH 222, 226, or 231. QR

*** MATH 226a, Linear Algebra (Intensive)** Ebru Toprak

A fast-paced introduction to the theory of vector spaces, matrix theory and linear transformations, determinants, eigenvalues, inner product spaces, spectral theorem. Topics are covered at a deeper level than in MATH 225, and additional topics may be covered, for example canonical forms or the classical groups. The course focuses on conceptual understanding. Familiarity with writing mathematical proofs is recommended. For a less intensive course, consider MATH 225. For an approach focused on applications, consider MATH 222. Prerequisite: MATH 115 or equivalent. May not be taken after MATH 222, 225, or 231. QR

MATH 232b / AMTH 232b, Advanced Linear Algebra with Applications Ian Adelstein

This course is a natural continuation of MATH 222. The core content includes eigenvectors and the Spectral Theorem for real symmetric matrices; singular value decomposition (SVD) and principle component analysis (PCA); quadratic forms, Rayleigh quotients and generalized eigenvalues. We also consider a number of applications: optimization and stochastic gradient descent (SGD); eigen-decomposition and dimensionality reduction; graph Laplacians and data diffusion; neural networks and machine learning. A main theme of the course is using linear algebra to learn from data. Students complete (computational) projects on topics of their choosing. Prerequisites: MATH 120 and MATH 222, 225, or 226. This is not a proof based course. May not be taken after MATH 240. QR

MATH 241a / S&DS 241a, Probability Theory Yihong Wu

Introduction to probability theory. Topics include probability spaces, random variables, expectations and probabilities, conditional probability, independence, discrete and continuous distributions, central limit theorem, Markov chains, and probabilistic modeling. After or concurrently with MATH 120 or equivalent. QR

MATH 244a or b / AMTH 244a or b, Discrete Mathematics Staff

Basic concepts and results in discrete mathematics: graphs, trees, connectivity, Ramsey theorem, enumeration, binomial coefficients, Stirling numbers. Properties of finite set systems. Recommended preparation: MATH 115 or equivalent. QR

MATH 246a or b, Ordinary Differential Equations Staff

First-order equations, second-order equations, linear systems with constant coefficients. Numerical solution methods. Geometric and algebraic properties of differential equations. After MATH 120 or equivalent; after or concurrently with MATH 222 or 225 or 226 or equivalent. QR

MATH 247b / AMTH 247b, Intro to Partial Differential Equations Erik Hiltunen

Introduction to partial differential equations, wave equation, Laplace's equation, heat equation, method of characteristics, calculus of variations, series and transform methods, and numerical methods. Prerequisites: MATH 222 or 225 or 226, MATH 246 or ENAS 194 or equivalents. QR

MATH 255a or b, Analysis 1 Staff

Introduction to Analysis. Properties of real numbers, limits, convergence of sequences and series. Power series, Taylor series, and the classical functions. Differentiation and Integration. Metric spaces. The course focuses on conceptual understanding. Familiarity with writing mathematical proofs is assumed, and is further

developed in the course. Prerequisite: MATH 115 or equivalent, and MATH 225 or 226. May not be taken after MATH 256, 300, or 301. QR

*** MATH 256b, Analysis 1 (Intensive)** Staff

Fast-paced introduction to Analysis. Properties of real numbers, limits, convergence of sequences and series. Power series, Taylor series, and the classical functions. Differentiation and Integration. Metric spaces. The course focuses on conceptual understanding. Familiarity with writing mathematical proofs is assumed, and is further developed in the course. Prerequisite: MATH 115 or equivalent, and MATH 225 or 226. May not be taken after MATH 255, 300, or 301. QR

MATH 260b / AMTH 260b, Basic Analysis in Function Spaces Ronald Coifman

Diagonalization of linear operators, with applications in physics and engineering; calculus of variations; data analysis. MATH 260 is a natural continuation of PHYS 301. Prerequisites: MATH 120, and 222 or 225 or 226. QR

MATH 270a, Set Theory Charles Smart

Algebra of sets; finite, countable, and uncountable sets. Cardinal numbers and cardinal arithmetic. Order types and ordinal numbers. The axiom of choice and the well-ordering theorem. After MATH 120 or equivalent. QR

MATH 302a or b, Vector Analysis and Integration on Manifolds Staff

A rigorous treatment of the modern toolkit of multivariable calculus. Differentiation and integration in \mathbb{R}^n . Inverse function theorem. Fubini's theorem. Multilinear algebra and differential forms. Manifolds in \mathbb{R}^n . Generalized Stokes' Theorem. The course focuses on conceptual structure and proofs, and serves as a gateway to more advanced courses which use the language of manifolds. Prerequisites: MATH 225 or 226, and MATH 255 or 256. QR

MATH 305b, Analysis 2: Lebesgue Integration and Fourier Series Hee Oh

The Lebesgue integral, Fourier series, applications to differential equations. Prerequisites: MATH 225 or 226, and MATH 255 or 256 or 301. With permission of instructor, may be taken after MATH 225 or 226, and MATH 231 or 250. QR

MATH 310a, Introduction to Complex Analysis Richard Kenyon

An introduction to the theory and applications of functions of a complex variable. Differentiability of complex functions. Complex integration and Cauchy's theorem. Series expansions. Calculus of residues. Conformal mapping. Prerequisites: MATH 225 or 226 or 231, and MATH 255 or 256 or 230 or 250, and MATH 302 or 120. QR

*** MATH 315b, Intermediate Complex Analysis** Ebru Toprak

Continuation of MATH 310. Topics may include argument principle, Rouché's theorem, Hurwitz theorem, Runge's theorem, analytic continuation, Schwarz reflection principle, Jensen's formula, infinite products, Weierstrass theorem. Functions of finite order, Hadamard's theorem, meromorphic functions. Mittag-Leffler's theorem, subharmonic functions. After MATH 310. QR

*** MATH 320a, Measure Theory and Integration** Or Landesberg

Construction and limit theorems for measures and integrals on general spaces; product measures; L_p spaces; integral representation of linear functionals. After MATH 305 or equivalent. QR

*** MATH 325b, Introduction to Functional Analysis** Wilhelm Schlag

Hilbert, normed, and Banach spaces; geometry of Hilbert space, Riesz-Fischer theorem; dual space; Hahn-Banach theorem; Riesz representation theorems; linear operators; Baire category theorem; uniform boundedness, open mapping, and closed graph theorems. After MATH 320, or after MATH 305 with permission of instructor.

QR

MATH 330a / S&DS 400a, Advanced Probability Sekhar Tatikonda

Measure theoretic probability, conditioning, laws of large numbers, convergence in distribution, characteristic functions, central limit theorems, martingales. Some knowledge of real analysis assumed.

QR

*** MATH 345a, Modern Combinatorics** Van Vu

Recent developments and important questions in combinatorics. Relations to other areas of mathematics such as analysis, probability, and number theory. Topics include probabilistic method, random graphs, random matrices, pseudorandomness in graph theory and number theory, Szemerédi's theorem and lemma, and Green-Tao's theorem.

Prerequisite: MATH 244. QR

MATH 350a or b, Introduction to Abstract Algebra Staff

Group theory, structure of Abelian groups, and applications to number theory. Symmetric groups and linear groups including orthogonal and unitary groups; properties of Euclidean and Hermitian spaces. Some examples of group representations. Modules over Euclidean rings, Jordan and rational canonical forms of a linear transformation. Prerequisites: one term of linear algebra and two terms of proof-based mathematics courses. (For example, MATH 225 and 255, or MATH 225 and 244, or MATH 230 and 231, or MATH 225 and 250.) QR

MATH 370b, Fields and Galois Theory Miki Havlickova

Rings, with emphasis on integral domains and polynomial rings. The theory of fields and Galois theory, including finite fields, solvability of equations by radicals, and the fundamental theorem of algebra. Quadratic forms. After MATH 350. QR

MATH 380a, Algebra Ivan Loseu

The course serves as an introduction to commutative algebra and category theory. Topics include commutative rings, their ideals and modules, Noetherian rings and modules, constructions with rings, such as localization and integral extension, connections to algebraic geometry, categories, functors and functor morphisms, tensor product and Hom functors, projective modules. Other topics may be discussed at instructor's discretion. After MATH 350 and 370. QR

MATH 421a / AMTH 420a, The Mathematics of Data Science Kevin O'Neill

This course aims to be an introduction to the mathematical background that underlies modern data science. The emphasis is on the mathematics but occasional applications are discussed (in particular, no programming skills are required). Covered material may include (but is not limited to) a rigorous treatment of tail bounds in probability, concentration inequalities, the Johnson-Lindenstrauss Lemma as well as fundamentals of random matrices, and spectral graph theory. Prerequisite: MATH 305. QR, SC

MATH 435b, Differential Geometry Franco Vargas Pallete

Applications of calculus to the study of the geometry of curves and surfaces in Euclidean space, intrinsic differential geometric properties of manifolds, and connections with non-Euclidean geometries and topology. Prerequisites: MATH 225

or 226 or 231, and MATH 255 or 256 or 230 or 250, and MATH 302 or permission of instructor. QR

MATH 440b, Introduction to Algebraic Geometry Alexander Goncharov

Algebraic geometry is the study of algebraic varieties, which are the spaces described by zero sets of polynomial equations. This course is an introduction to algebraic geometry with a focus on algebraic curves. These are 1-dimensional varieties, which can also be viewed as Riemann surfaces, lying at the crossroads of many branches of mathematics. We develop the theory of algebraic curves including divisors, Hurwitz's theorem, Riemann-Roch theorem, Jacobians, and Abel-Jacobi theory. We also discuss some aspects of higher dimensional varieties. Prerequisites: MATH 310 and MATH 350. QR

MATH 470a or b, Individual Studies Miki Havlickova

Individual investigation of an area of mathematics outside of those covered in regular courses, involving directed reading, discussion, and either papers or an examination. A written plan of study approved by the student's adviser and the director of undergraduate studies is required. The course may normally be elected for only one term.

MATH 475a or b, Senior Essay Miki Havlickova

Interested students may write a senior essay under the guidance of a faculty member, and give an oral report to the department. Students wishing to write a senior essay should consult the director of undergraduate studies at least one semester in advance of the semester in which they plan to write the essay.

*** MATH 480a or b, Senior Seminar: Mathematical Topics** Staff

A number of mathematical topics are chosen each term—e.g., differential topology, Lie algebras, mathematical methods in physics—and explored in one section of the seminar. Students give several presentations on the chosen topic. Available for credit only to seniors majoring in Mathematics, Economics and Mathematics, or Mathematics and Philosophy. May not be taken after MATH 481.

*** MATH 481b, Senior Seminar: Topics in Economics and Mathematics** Kevin O'Neill and Dirk Bergemann

A number of topics at the intersection of economics and mathematics are chosen each term—e.g., the theory of networks, market design and equilibrium, information economics and probability—and explored in the seminar. Students present several talks on the chosen topic. This section is devoted to topics of interest to majors in Economics or Mathematics majors, and in particular to students in the joint major Economics and Mathematics. The seminar is co-taught by a member of the Economics Department. Available for credit only to seniors majoring in Mathematics, Economics and Mathematics, or Mathematics and Philosophy. May not be taken after MATH 480.

Mechanical Engineering (MENG)

*** MENG 099b / MB&B 099b / MCDB 099b / PHYS 099b / SCIE 099b, Introduction to Research Methods in Physics and Biology: Preparing for a First Research Experience** Simon Mochrie

Spanning both the classroom and laboratory, this seminar course provides an immersive introduction to scientific research. Students build practical laboratory skills, computational competency, and begin to build fluency in the structures and modes of communication that define modern research. The course also facilitates identification

of a laboratory mentor and devising a research proposal (with mentorship) for competitive summer research fellowship applications. This class is open to first-year students, interested in any STEM major, who have no prior research experience. This course does not count toward major requirements. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

MENG 185a or b, Mechanical Design Staff

A course designed for potential majors in mechanical engineering, with units on design methodology, statics, mechanics of materials, and machining. Includes a design project. Prerequisite: physics at the level of PHYS 180, or permission of instructor. SC
o Course cr

MENG 211a or b, Thermodynamics for Mechanical Engineers Staff

Study of energy and its transformation and utilization. First and Second Laws for closed and open systems, equations of state, multicomponent nonreacting systems, auxiliary functions (H, A, G), and the chemical potential and conditions of equilibrium. Engineering devices such as power and refrigeration systems and their efficiencies. Prerequisites: PHYS 180 or 200, and MATH 115. QR, SC

MENG 280a, Mechanical Engineering I: Strength and Deformation of Mechanical Elements Diana Qiu

Elements of statics; mechanical behavior of materials; equilibrium equations, strains and displacements, and stress-strain relations. Elementary applications to trusses, bending of beams, pressure vessels, and torsion of bars. Prerequisites: PHYS 180 or 200, and MATH 115. QR, SC RP

MENG 285a, Introduction to Materials Science Jan Schroers

Study of the atomic and microscopic origin of the properties of engineering materials: metals, glasses, polymers, ceramics, and composites. Phase diagrams; diffusion; rates of reaction; mechanisms of deformation, fracture, and strengthening; thermal and electrical conduction. Prerequisites: elementary calculus and background in basic mechanics (deformation, Hooke's law) and structure of atoms (orbitals, periodic table). QR, SC RP

MENG 286La or b, Solid Mechanics and Materials Science Laboratory Staff

This course introduces undergraduate students to a variety of microstructure characterization and mechanical testing techniques for engineering materials. It offers hands-on laboratory projects that enable students to investigate the relationship between the mechanical behavior of materials and their microstructure. Topics include bending and hardness tests, processing of materials, and fracture. The course uses several characterization methods, including scanning electron microscopy, atomic force microscopy, x-ray diffraction, differential scanning calorimetry, nanomechanical testing, and tensile testing. Prerequisite: MENG 285 SC RP o Course cr

MENG 287b, Intermediate Mechanical Design Joran Booth

This is a hands-on, project-based course in mechanical design. Students work on design projects that expose them to a variety of manufacturing techniques, including laser cutting, 3D printing, machining, and soldering. Completing these projects gives students the opportunity to hone many practical skills, including computer-aided design, parametric modeling, creating webpages, and programming microcontrollers. Throughout the semester, students create a design portfolio that showcases their projects. Prerequisite: MENG 185.

* **MENG 320a / ENRG 320a / ENVE 320a, Energy, Engines, and Climate** Alessandro Gomez

The course aims to cover the fundamentals of a field that is central to the future of the world. The field is rapidly evolving and, although an effort will be made to keep abreast of the latest developments, the course emphasis is on timeless fundamentals, especially from a physics perspective. Topics under consideration include: key concepts of climate change as a result of global warming, which is the primary motivator of a shift in energy supply and technologies to wean humanity off fossil fuels; carbon-free energy sources, with primary focus on solar, wind and associated needs for energy storage and grid upgrade; and, traditional power plants and engines using fossil fuels, that are currently involved in 85% of energy conversion worldwide and will remain dominant for at least a few decades. Elements of thermodynamics are covered throughout the course as needed, including the definition of various forms of energy, work and heat as energy transfer, the principle of conservation of energy, first law and second law, and rudiments of heat engines. We conclude with some considerations on energy policy and with the "big picture" on how to tackle future energy needs. The course is designed for juniors and seniors in science and engineering. Prerequisite: MENG 211 or permission from the instructor. SC

* **MENG 325a, Machine Elements and Manufacturing Processes** Joran Booth

This course provides students a working knowledge of two fundamental topics related to mechanical design: machine elements and manufacturing processes. *Machine elements* refer one or more of a range of common design elements that transmit power and enable smooth and efficient motion in mechanical systems with moving parts. This course introduces the most common of these elements and gives students the tools to systems design with them. Topics include common linkages, gearing, bearings, springs, clutches, brakes, and common actuators such as DC motors. *Manufacturing processes* are necessary for the mechanical design engineer to effectively perform her or his duties; they provide an understanding of how the parts and systems that they design are fabricated, allowing "Design for Manufacturing" principles to be taken into account in the product development process. Students learn the basics of common commercial manufacturing processes for mechanical systems, including low-volume processes such as machining to high-volume processes such as casting (metal parts), molding (plastic parts), and stamping (sheet metal parts). Prerequisites: Extensive CAD experience. MENG 185 and MENG 280 recommended.

MENG 361a, Mechanical Engineering II: Fluid Mechanics Mitchell Smooke

Mechanical properties of fluids, kinematics, Navier-Stokes equations, boundary conditions, hydrostatics, Euler's equations, Bernoulli's equation and applications, momentum theorems and control volume analysis, dimensional analysis and similitude, pipe flow, turbulence, concepts from boundary layer theory, elements of potential flow. Prerequisites: ENAS 194 or equivalent, and physics at least at the level of PHYS 180.

QR, SC RP

* **MENG 363Lb, Fluid Mechanics and Thermodynamics Laboratory** Staff

Hands-on experience in applying the principles of fluid mechanics and thermodynamics. Integration of experiment, theory, and simulation to reflect real-world phenomena. Students design and test prototype devices. Prerequisites: MENG 211 and 361. WR, SC o Course cr

MENG 383b, Mechanical Engineering III: Dynamics Staff

Kinematics and dynamics of particles and systems of particles. Relative motion; systems with constraints. Rigid body mechanics; gyroscopes. Prerequisites: PHYS 180 or 200, and MATH 120 or ENAS 151. QR, SC

MENG 385b, Thermodynamics, Kinetics, and Structure of Materials Jan Schroers

This advanced-level course focuses on the thermodynamic and kinetic aspects of materials and how they define structure and properties. We first discuss thermodynamics relevant to materials. This includes thermodynamic laws, auxiliary functions to develop convenient equations of state to describe equilibrium, Gibbs Free Energy (G), experimental determination of G , model calculations of G such as ideal solutions and regular solutions, using G curves to construct equilibrium conditions, phase diagram constructions, reading of phase diagrams. We then focus on solidification which we develop from the phenomena of undercooling, nucleation and growth. Combining both, allows us to predict microstructures formed during solidification far and close to equilibrium. We also discuss glass formation, the case when nucleation and growth can be suppressed, and the liquid freezes upon cooling into a glass. Prerequisite: MENG 285. o Course cr

MENG 389b, Mechanical Engineering IV: Fluid and Thermal Energy Science Beth

Anne Bennett

Fundamentals of mechanical engineering applicable to the calculation of energy and power requirements, as well as transport of heat by conduction, convection, and radiation. Prerequisites: MENG 211, 361, and ENAS 194; or permission of instructor. QR, SC

MENG 390Lb, Mechatronics Laboratory Madhusudhan Venkadesan

Hands-on synthesis of control systems, electrical engineering, and mechanical engineering. Review of Laplace transforms, transfer functions, software tools for solving ODEs. Review of electronic components and introduction to electronic instrumentation. Introduction to sensors. Mechanical power transmission elements. Programming microcontrollers. PID control. Prerequisites: ENAS 194 or equivalent, ENAS 130, and EENG 200; or permission of instructor. QR

MENG 400a or b, Computer-Aided Engineering Staff

Aspects of computer-aided design and manufacture (CAD/CAM). The computer's role in the mechanical design and manufacturing process; commercial tools for two- and three-dimensional drafting and assembly modeling; finite-element analysis software for modeling mechanical, thermal, and fluid systems. Prerequisite: ENAS 130 or permission of instructor. QR

MENG 403b, Introduction to Nanomaterials and Nanotechnology Cong Su

Survey of nanomaterial synthesis methods and current nanotechnologies. Approaches to synthesizing nanomaterials; characterization techniques; device applications that involve nanoscale effects. Prerequisites: ENAS 194 and MENG 285, or permission of instructor. SC

MENG 404b / BENG 404b, Medical Device Design and Innovation Daniel Wiznia
and Steven Tommasini

The engineering design, project planning, prototype creation, and fabrication processes for medical devices that improve patient conditions, experiences, and outcomes. Students develop viable solutions and professional-level working prototypes to address

clinical needs identified by practicing physicians. Some attention to topics such as intellectual property, the history of medical devices, documentation and reporting, and regulatory affairs. o Course cr

MENG 425b, Advanced Design and Analysis of Machines Ronald Adrezin

There are many useful, classic mechanisms that require a single actuator to operate. These include four-bar mechanisms, slider-crank, cam-followers, and scotch-yokes. In this course, students learn to design (synthesize) classic mechanisms. They also learn how to analyze the kinematics and kinetics of important machines. While systems based on single actuators are common, the course then introduces the dynamics of multiple degree-of-freedom machines such as robotic actuators. This course focuses on planar systems and students learn to write equations of motion of robots that can roll forward with multiple articulating linkages. Students design and analyze using SolidWorks and solve equations with Matlab. A project is designed, analyzed, built, and tested utilizing a microcontroller and 3D printer. Prerequisites: ENAS 130, MENG 325.

MENG 441a / ENAS 441a, Applied Numerical Methods for Differential Equations

Beth Anne Bennett

The derivation, analysis, and implementation of numerical methods for the solution of ordinary and partial differential equations, both linear and nonlinear. Additional topics such as computational cost, error estimation, and stability analysis are studied in several contexts throughout the course. Prerequisites: MATH 115, and 222 or 225, or equivalents; ENAS 130 or some knowledge of Matlab, C++, or Fortran programming; ENAS 194 or equivalent. ENAS 440 is not a prerequisite. QR

MENG 443a / EENG 443a, Fundamentals of Robot Modeling and Control Ian

Abraham

This course introduces fundamental concepts of robotics, optimal control, and reinforcement learning. Lectures cover topics on state representation, manipulator equations, forward/inverse kinematics/dynamics, planning and control of fully actuated and underactuated robots, operational space control, control via mathematical optimization, and reinforcement learning. The topics focus on connecting mathematical formulations to algorithmic implementation through simulated robotic systems. Coding assignments provide students experience setting up and interfacing with several simulated robotic systems, algorithmic implementation of several state-of-the-art methods, and a codebase for future use. Special topic lectures focus on recent developments in the field of robotics and highlight core research areas. A final class project takes place instead of a final exam where students leverage the codebase they have built throughout the course in a robot problem of their choosing. Experience with differential equations, linear algebra, and basic understanding of dynamics is required. Basic coding experience in e.g., python, c++, c, are also required. Juniors and seniors preferred.

MENG 463b, Theoretical Fluid Dynamics Juan de la Mora

Derivation of the equations of fluid motion from basic principles. Potential theory, viscous flow, flow with vorticity. Topics in hydrodynamics, gas dynamics, stability, and turbulence. Prerequisite: MENG 361 or equivalent. QR, SC RP

MENG 464b, Forces on the Nanoscale Udo Schwarz

Modern materials science often exploits the fact that atoms located at surfaces or in thin layers behave differently from bulk atoms to achieve new or greatly altered material

properties. The course provides an in-depth discussion of intermolecular and surface forces, which determine the mechanical and chemical properties of surfaces. In the first part, we discuss the fundamental principles and concepts of forces between atoms and molecules. Part two generalizes these concepts to surface forces. Part three then gives a variety of examples. The course is of interest to students studying thin-film growth, surface coatings, mechanical and chemical properties of surfaces, soft matter including biomembranes, and colloidal suspensions. Some knowledge of basic physics, mathematics, chemistry, and thermodynamics is expected. SC o Course cr

MENG 466a, Engineering Acoustics Staff

Wave propagation in strings, membranes, plates, ducts, and volumes; plane, cylindrical, and spherical waves; reflection, transmission, and absorption characteristics; sources of sound. Introduction to special topics such as architectural, underwater, psychological, nonlinear, and musical acoustics, noise, and ultrasonics. Prerequisite: ENAS 194.

* **MENG 469a, Aerodynamics** Juan de la Mora

Review of fluid dynamics. Inviscid flows over airfoils; finite wing theory; viscous effects and boundary layer theory. Compressible aerodynamics: normal and oblique shock waves and expansion waves. Linearized compressible flows. Some basic knowledge of thermodynamics is expected. Prerequisite: MENG 361 or permission of instructor. QR, SC

* **MENG 471a and MENG 472b, Special Projects I** Staff

Faculty-supervised one- or two-person projects with emphasis on research (experiment, simulation, or theory), engineering design, or tutorial study. Students are expected to consult the course instructor, director of undergraduate studies, and/or appropriate faculty members to discuss ideas and suggestions for topics. Focus on development of professional skills such as writing abstracts, prospectuses, and technical reports as well as good practices for preparing posters and delivering presentations. Permission of advisor and director of undergraduate studies is required. Students are required to attend a 75-minute section once per week.

* **MENG 473a and MENG 474b, Special Projects II** Staff

Faculty-supervised one- or two-person projects with emphasis on research (experiment, simulation, or theory), engineering design, or tutorial study. Students are expected to consult the course instructor, director of undergraduate studies, and/or appropriate faculty members to discuss ideas and suggestions for topics. These courses may be taken at any time during the student's career and may be taken more than once. Prerequisites: MENG 471 or 472; permission of adviser and director of undergraduate studies.

MENG 475a / ENAS 475a, Fluid Mechanics of Natural Phenomena Amir Pahlavan

This course draws inspiration from nature and focuses on utilizing the fundamental concepts of fluid mechanics and soft matter physics to explain these phenomena. We study a broad range of problems related to i) nutrient transport in plants, slime molds, and fungi and the adaptation of their networks in dynamic environments, ii) collective behavior and chemotaxis of swimming microorganisms, and iii) pattern formation in nature, e.g. icicles, mud cracks, salt polygons, dendritic crystals, and Turing patterns. We also discuss how our understanding of these problems could be used to develop sustainable solutions for the society, e.g. designing synthetic trees to convert CO₂

to oxygen, developing micro/nano robots for biomedical applications, and utilizing pattern formation and self-assembly to make new materials. Prerequisite: MENG 361.

MENG 487La, Mechanical Design: Process and Implementation I Joran Booth

This course is the first half of the capstone design sequence (students take MENG 488 in the spring semester of the same academic year) and is a unique opportunity to apply and demonstrate broad and detailed knowledge of engineering in a team effort to design, construct, and test a functioning engineering system. The lecture portion of the class provides guidance in planning and managing your project, as well other topics associated with engineering design. This course sequence requires quality design; analyses and experiments to support the design effort; and the fabrication and testing of the engineered system; as well as proper documentation and presentation of results to a technical audience. Prerequisites: MENG 280, MENG 325, MENG 361. MENG 185 and MENG 390 are strongly suggested. RP

MENG 488Lb, Mechanical Design: Process and Implementation II Joran Booth

This course is the second half of the capstone design sequence (students take MENG 487 in the fall semester of the same academic year) and is a unique opportunity to apply and demonstrate broad and detailed knowledge of engineering in a team effort to design, construct, and test a functioning engineering system. The lecture portion of the class provides guidance in planning and managing your project, as well other topics associated with engineering design. This course sequence requires quality design; analyses and experiments to support the design effort; and the fabrication and testing of the engineered system; as well as proper documentation and presentation of results to a technical audience. Prerequisites: MENG 487, MENG 280, and MENG 361. MENG 185 and MENG 325 are strongly suggested. ½ Course cr

MENG 492b, Electronic and Optical Properties of Energy Materials Diana Qiu

This class explores the electronic and optical properties of materials from the perspective of electronic and molecular structure with a special focus on the microscopic origin and design of properties of interest for energy harvesting, storage, and transport. The course starts by briefly introducing concepts in quantum mechanics, such as wavefunctions and the time-independent Schrodinger equations. Then, we explore electronic structure in the context of designing materials for energy harvesting and generation, such as photovoltaics, thermoelectrics, and piezoelectrics. We also study dynamical processes, such as hot electron relaxation, multi-exciton generation, charge transport, and energy transport at a phenomenological level. Finally, we overview common energy storage materials, with a focus on solid-state batteries and solar fuels. Prerequisite: MENG 285, ENAS 151, or equivalent. QR, SC

Modern Greek/Hellenic Studies (MGRK)

MGRK 110a, Elementary Modern Greek I Maria Kaliambou

An introduction to modern Greek, with emphasis on oral expression. Use of communicative activities, graded texts, written assignments, grammar drills, audiovisual material, and contemporary documents. In-depth cultural study. L1
1½ Course cr

MGRK 120b, Elementary Modern Greek II Maria Kaliambou

Continuation of MGRK 110. Prerequisite: MGRK 110. L2 1½ Course cr

* **MGRK 130a, Intermediate Modern Greek I** Maria Kaliambou

Further development of oral and written linguistic skills, using authentic readings and audiovisual materials. Continued familiarization with contemporary Greek culture. Prerequisite: MGRK 120 or equivalent. L3 1½ Course cr

* **MGRK 140b, Intermediate Modern Greek II** Maria Kaliambou

Further development of listening, speaking, reading, and writing skills in modern Greek. Presentation of short research projects related to modern Greece. Prerequisite: MGRK 130 or equivalent. L4 1½ Course cr

* **MGRK 216a / CLCV 216a / LITR 239a / WGSS 209a, Dionysus in Modernity**

George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU TR

* **MGRK 218b / FILM 243b / WGSS 245b, Family in Greek Literature and Film**

George Syrimis

The structure and multiple appropriations of the family unit, with a focus on the Greek tradition. The influence of aesthetic forms, including folk literature, short stories, novels, and film, and of political ideologies such as nationalism, Marxism, and totalitarianism. Issues related to gender, sibling rivalry, dowries and other economic factors, political allegories, feminism, and sexual and social violence both within and beyond the family. WR, HU TR

* **MGRK 236b / PLSC 138b / SOCY 221b, The Euro Crisis** Paris Aslanidis

Examination of how Europe continues to struggle with the social and economic repercussions of the Great Recession and the impact of socioeconomic asymmetries in countries such as Portugal, Ireland, Spain, Italy, and Greece. Topics include the euro as a viable common currency; why and how the Euro crisis erupted and spread; how the COVID-19 fallout will impact the Union. SO

* **MGRK 237a / GBL 215a / LAST 386a / PLSC 375a / SOCY 389a, Populism** Paris Aslanidis

Investigation of the populist phenomenon in party systems and the social movement arena. Conceptual, historical, and methodological analyses are supported by comparative assessments of various empirical instances in the US and around the world, from populist politicians such as Donald Trump and Bernie Sanders, to populist social movements such as the Tea Party and Occupy Wall Street. WR, SO

* **MGRK 238a / FILM 341a / WGSS 233a, Weird Greek Wave Cinema** George Syrimis

The course examines the cinematic production of Greece in the last fifteen years or so and looks critically at the popular term “weird Greek wave” applied to it. Noted for their absurd tropes, bizarre narratives, and quirky characters, the films question and disturb traditional gender and social roles, as well as international viewers’ expectations of national stereotypes of classical luminosity#the proverbial “Greek light”#Dionysian exuberance, or touristic leisure. Instead, these works frustrate not only a wholistic reading of Greece as a unified and coherent social construct, but also the physical or aesthetic pleasure of its landscape and its ‘quaint’ people with their insistence on grotesque, violent, or otherwise disturbing images or themes (incest, sexual otherness

and violence, aggression, corporeality, and xenophobia). The course also pays particular attention on the economic and political climate of the Greek financial crisis during which these films are produced and consumed and to which they partake. None HU

* **MGRK 300b / CLCV 319b / HIST 242Jb / WGSS 293b, The Olympic Games, Ancient and Modern** George Syrimis

Introduction to the history of the Olympic Games from antiquity to the present. The mythology of athletic events in ancient Greece and the ritual, political, and social ramifications of the actual competitions. The revival of the modern Olympic movement in 1896, the political investment of the Greek state at the time, and specific games as they illustrate the convergence of athletic cultures and sociopolitical transformations in the twentieth century. HU

* **MGRK 304b / ER&M 376b / PLSC 376b / SOCY 307b, Extreme and Radical Right Movements** Paris Aslanidis

Extreme and radical right movements and political parties are a recurrent phenomenon found in most parts of the world. Discussion of their foundational values and the causes of their continuous, even increasing, support among citizens and voters. SO

* **MGRK 305a / HIST 294a, The Age of Revolution** Paris Aslanidis

The course is a comparative examination of the international dimensions of several revolutions from 1776 to 1848. It aims to explore mechanisms of diffusion, shared themes, and common visions between the revolutionary upheavals in the United States, France, Haiti, South America, Greece, and Italy. How similar and how different were these episodes? Did they emerge against a common structural and societal backdrop? Did they equally serve their ideals and liberate their people against tyranny? What was the role of women and the position of ethnic minorities in the fledgling nation-states? As the year 2021 marks the bicentennial of the Greek Revolution of 1821, special attention is given to the intricate links forged between Greek revolutionary intellectuals and their peers in Europe and other continents WR, HU

* **MGRK 306b / AMST 307b / ER&M 298b / HIST 117b / LITR 375b, The Greek Diaspora in the United States** Maria Kaliambou

The seminar explores the history and culture of the Greek diasporic community in the United States from the end of the 19th century to the present. The Greek American experience is embedded in the larger discussion of ethnic histories that construct modern America. The seminar examines important facets of immigration history, such as community formation, institutions and associations, professional occupations, and civic engagement. It pays attention to the everyday lives of the Greek Americans as demonstrated in religious, educational, and family cultural practices. It concludes by exploring the artistic expressions of Greek immigrants as manifested in literature, music, and film production. The instructor provides a variety of primary sources (archival records, business catalogs, community albums, personal narratives, letters, audiovisual material, etc.). All primary and secondary sources are in English; however, students are encouraged to read available material in the original language. n/a WR, HU

Modern Middle East Studies (MMES)

* **MMES 086b / HIST 086b, Cairo, 1850-Present** Omnia El Shakry

This course explores the history of Cairo from the middle of the nineteenth century to the present. We examine various facets of modern Cairo ranging from architectural modernism to urban expressions of Christian and Muslim piety, while focusing on the principal political, cultural, and social factors that have shaped the city. Themes include political technologies; colonial modernity; artifacts and architecture; workers and students; capitalism, commodities, and consumerism; gender and sexuality; policing and surveillance; urban expansion; piety; the everyday; soundscapes; and the 2011 Uprising. We mobilize a diverse array of primary and secondary sources, novels, films, music, art, and architecture in our exploration, with an emphasis on work produced in Cairo. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **MMES 126a / ARCH 271a / HSAR 266a / SAST 266a, Introduction to Islamic Architecture** Staff

Introduction to the architecture of the Islamic world from the seventh century to the present, encompassing regions of Asia, North Africa, and Europe. A variety of sources and media, from architecture to urbanism and from travelogues to paintings, are used in an attempt to understand the diversity and richness of Islamic architecture. Besides traditional media, the class will make use of virtual tours of architectural monuments as well as artifacts at the Yale University Art Gallery, accessed virtually. HU o Course cr

MMES 138a / HUMS 138a / LITR 428a / NELC 131a / RLST 165a, The Quran Travis Zadeh

Introduction to the study of the Quran. Topics include: the literary, historical, and theological reception of the Quran; its collection and redaction; the scriptural milieu of late antiquity; education and religious authority; ritual performance and calligraphic expression; the diversity of Muslim exegesis. HU

MMES 148b / HIST 345b / JDST 265b / RLST 202b, Jews in Muslim Lands from the Seventh to the Sixteenth Centuries Ivan Marcus

Jewish culture and society in Muslim lands from the time of the Prophet Muhammad to that of Suleiman the Magnificent. Topics include Islam and Judaism; Jerusalem as a holy site; rabbinic leadership and literature in Baghdad; Jewish courtiers, poets, and philosophers in Muslim Spain; and the Jews in the Ottoman Empire. HU o Course cr

MMES 149a / ER&M 219a / HIST 219a / JDST 200a / RLST 148a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings. Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

* **MMES 150a / HEBR 150a / JDST 213a, Advanced Modern Hebrew: Daily Life in Israel** Orit Yeret

An examination of major controversies in Israeli society. Readings include newspaper editorials and academic articles as well as documentary and historical material.

Advanced grammatical structures are introduced and practiced. Conducted in Hebrew.
Prerequisite: HEBR 140 or equivalent. L5 RP

* **MMES 157b / JDST 306b / NELC 157b, Israeli Narratives** Shiri Goren

This course looks at contemporary representations of social, political, and domestic space in Israel through cultural production such as literature, visual work, and art. It focuses on close reading of major Israeli works in translation with attention to how their themes and forms relate to the Israeli condition. Reading and viewing include: Amos Oz's major novel *A Tale of Love and Darkness*, *Anne Frank: The Graphic Diary*, Maya Arad's novella "The Hebrew Teacher," TV show *Arab Labor* and writing by Yehudah Amichai, Etgar Keret, and Sayed Kashua, among others. We discuss topics and theories of personal and collective identity formation, war and peace, ethnicity and race, migration, nationalism, and gender. No knowledge of Hebrew required. WR, HU TR

* **MMES 162a / HEBR 169a / JDST 403a / LING 165a, Languages in Dialogue: Hebrew and Arabic** Dina Roginsky

Hebrew and Arabic are closely related as sister Semitic languages. They have a great degree of grammatical, morphological, and lexical similarity. Historically, Arabic and Hebrew have been in cultural contact in various places and in different aspects. This advanced Hebrew language class explores linguistic similarities between the two languages as well as cultural comparisons of the communities, built on mutual respect. Students benefit from a section in which they gain a basic exposure to Arabic, based on its linguistic similarity to Hebrew. Conducted in Hebrew. Prerequisite: HEBR 140, or placement test, or permission of the instructor. L5, HU TR RP

* **MMES 166a / HEBR 167a / JDST 402a, Creative Writing in Hebrew** Orit Yeret

An advanced language course with focus on creative writing and self-expression. Students develop knowledge of modern Hebrew, while elevating writing skills based on special interests, and in various genres, including short prose, poetry, dramatic writing, and journalism. Students engage with diverse authentic materials, with emphasis on Israeli literature, culture, and society. Prerequisite: HEBR 140 or placement exam. L5 RP

* **MMES 170a / ARBC 168a, Modern Arab Writers** Muhammad Aziz

Study of novels and poetry written by modern Arab writers. Such writers include Taha Hussein, Zaid Dammaj, Huda Barakat, Nizar Qabbani, al-Maqalih, and Mostaghani. Prerequisite: ARBC 151 or permission of instructor. L5

* **MMES 179a / PERS 180a, Reading Persian Texts** Farkhondeh Shayesteh

Students are presented with opportunities to enhance their knowledge of Persian, with primary focus on reading skills. The course involves reading, analyzing, and in-class discussion of assigned materials in the target language. Authentic reading excerpts from history, art, philosophy, and literature, as well as art history materials from medieval to modern times are used. This course is taught in Persian. Prerequisite: L4 and instructor permission. L5

* **MMES 216b / HEBR 156b / JDST 405b, Dynamics of Israeli Culture** Shiri Goren

Controversies in Israeli society as revealed in novels, films, poetry, newspaper articles, Web sites, art, advertisements, and television shows. Themes include migration and the construction of the Sabra character; ethnicity and race; the emergence of the Mizrahi voice; women in Israeli society; private and collective memory; the minority discourse

of the Druze and Russian Jews; and Israeli masculinity and queer culture. Conducted in Hebrew. Papers may be written in English or Hebrew. Prerequisite: HEBR 140 or permission of instructor. L5, HU RP

*** MMES 237a / LITR 423a, Politics and Literature in Modern Iran and Afghanistan**
Bezhan Pazhohan

This course traces the emergence of modern Persian literature in Iran and Afghanistan, introducing the contemporary poets and writers of fiction who created this new literary tradition in spite of political, social, state, and religious constraints. Our readings include Iranian novelists working under censorship, Afghan memoirists describing their experience in a warzone, and even contemporary writers living in exile in the US or Europe. Major writers include Mohammad Ali Jamalzadeh, Sadeq Hedayat, Simin Behbahani, Forugh Farrokhzad, Homeira Qaderi (who will visit the class), and Khaled Hosseini. HU

MMES 290a / PLSC 435a / RLST 290a, Islam Today: Modern Islamic Thought Frank Griffel

Introduction to Islamic thought after 1800, including some historical background. The development of Islamic modernism in the 19th century and of Islamic fundamentalism in the 20th. Islam as a reactive force to Western colonialism; the ideals of Shari'a, Islam as a political ideology, and the emergence of Jihad movements. Different kinds of Salafism, Islamic liberalism, and feminism as well as the revival of Islam's intellectual heritage. HU o Course cr

*** MMES 321a / ANTH 321a / SOCY 318a / WGSS 321a, Middle East Gender Studies**
Marcia Inhorn

The lives of women and men in the contemporary Middle East explored through a series of anthropological studies and documentary films. Competing discourses surrounding gender and politics, and the relation of such discourse to actual practices of everyday life. Feminism, Islamism, activism, and human rights; fertility, family, marriage, and sexuality. SO

*** MMES 342a / HIST 232Ja / HUMS 443a / JDST 270a / RLST 201a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural grids and expectations each imposed on the other; the rhetoric of otherness—humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

*** MMES 360b / AFST 425b / FREN 425b, North African French Poetry** Thomas Connolly

Introduction to North African poetry composed in French during the twentieth and twenty-first centuries. Works explored within the broader context of metropolitan French, Arabic, and Berber cultures; juxtaposition with other modes of expression including oral poetry, painting, dance, music, the Internet, and film. The literary, aesthetic, political, religious, and philosophical significance of poetic discourse. HU

*** MMES 491a, Senior Essay** Jonas Elbousty

The one-term senior essay is a research paper of at least thirty pages prepared under the supervision of a faculty member in accordance with the following schedule: (1) by the end of the second week of classes of the term, students meet with advisers to discuss the essay's topic, approach, sources, and bibliography; (2) by the end of the fourth week of classes a prospectus with outline, including an annotated bibliography of materials in one or more modern Middle Eastern languages and of secondary sources, is signed by the adviser and submitted to the director of undergraduate studies. The prospectus should indicate the formal title, scope, and focus of the essay, as well as the proposed research method, including detailed indications of the nature and extent of materials in a modern Middle Eastern language that will be used; (3) at the end of the tenth week of classes, a rough draft of the complete essay is submitted to the adviser; (4) by 4 p.m. on the last day of reading period, two copies of the finished paper must be submitted to the MMES registrar, 115 Prospect St., room 344. A late essay will receive a lower grade. Senior essays are graded by faculty associated with the Modern Middle East Studies program unless, for exceptional reasons, different arrangements for another reader have been made in advance with the director of undergraduate studies and the faculty adviser.

*** MMES 493a, The Yearlong Senior Essay** Jonas Elbousty

The yearlong senior essay is a research paper of at least sixty pages prepared under the supervision of a faculty member in accordance with the following schedule: (1) by the end of the second week of classes of the first term, students meet with advisers to discuss the essay's topic, approach, sources, and bibliography; (2) by the end of the fourth week of classes a prospectus with outline, including an annotated bibliography of materials in one or more modern Middle Eastern languages and of secondary sources, is signed by the adviser and submitted to the director of undergraduate studies. The prospectus should indicate the formal title, scope, and focus of the essay, as well as the proposed research method, including detailed indications of the nature and extent of materials in a modern Middle Eastern language that will be used; (3) at the end of February, a rough draft of the complete essay is submitted to the adviser; (4) by 4 p.m. on the last day of reading period in the spring term, two copies of the finished paper must be submitted to the MMES registrar, 115 Prospect St., room 344. A late essay will receive a lower grade. Senior essays are graded by faculty associated with the Modern Middle East Studies program unless, for exceptional reasons, different arrangements for another reader have been made in advance with the director of undergraduate studies and the faculty adviser.

Modern Tibetan (MTBT)

[View Courses](#)

Molecular Biophysics and Biochemistry (MB&B)

*** MB&B 050b, Topics in Cancer Biology** Sandy Chang

Introduction to cancer as a genetic disease, with a focus on major discoveries in cancer biology that offer mechanistic insights into the disease process. A brief history of cancer; influence of the genomic revolution on cancer diagnostics; molecular defects underlying specific cancers; current and future cancer therapeutics. Patient case studies highlight specific molecular pathways and treatment strategies. Enrollment limited to

first-year students with a strong background in biology and/or chemistry, typically demonstrated by a score of 5 on Advanced Placement examinations. Preregistration required; see under First-Year Seminar Program. WR, SC

*** MB&B 099b / MCDB 099b / MENG 099b / PHYS 099b / SCIE 099b, Introduction to Research Methods in Physics and Biology: Preparing for a First Research Experience** Simon Mochrie

Spanning both the classroom and laboratory, this seminar course provides an immersive introduction to scientific research. Students build practical laboratory skills, computational competency, and begin to build fluency in the structures and modes of communication that define modern research. The course also facilitates identification of a laboratory mentor and devising a research proposal (with mentorship) for competitive summer research fellowship applications. This class is open to first-year students, interested in any STEM major, who have no prior research experience. This course does not count toward major requirements. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

MB&B 105a or b / MCDB 105a or b, Biology, the World, and Us Staff

This course is for non-science majors who wish to gain an understanding of modern biology by examining the scientific basis of current issues. We'll consider issues related to: i) pandemics and global infectious disease; ii) the climate crisis; iii) the future of genetics and the new green revolution. Many of the topics have an increasingly large impact on our daily lives. The issues are both social and biological, and it's crucial that social debate be based on a clear understanding of the underlying science. The instructors will explain the scientific foundation beneath each issue. We'll emphasize the nature of science as a process of inquiry rather than a fixed body of terminology and facts. The course is not intended to be a comprehensive survey of biology. SC
o Course cr

*** MB&B 107b / EDST 107b / PHYS 107b, Being Human in STEM** Rona Ramos

A collaboratively-designed, project-oriented course that seeks to examine, understand, and disseminate how diversity of gender, race, religion, sexuality, economic circumstances, etc. shape the STEM experience at Yale and nationally, and that seeks to formulate and implement solutions to issues that are identified. Study of relevant peer-reviewed literature and popular-press articles. Implementation of a questionnaire and interviews of STEM participants at Yale. Creation of role-play scenarios for provoking discussions and raising awareness. Design and implementation of group interventions.
SO

*** MB&B 121La or b / PHYS 121La or b, Introduction to Physics in Living Systems I: Observation and Analysis** Staff

A hands-on introduction to the physics that enables life and human measurement of living things. This lab builds student knowledge of scientific experimental design and practice. Topics include detection of light, basic circuit building, sterile technique in biology and physics, data collection with student-built instrumentation, and quantitative assessment. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 124L. Priority is given to first-year students looking to fulfill medical school

application requirements and students seeking to join research labs at Yale. SC
½ Course cr

* **MB&B 124La or b / PHYS 124La or b, Introduction to Physics in Living Systems**

Laboratory IV: Electricity, Magnetism, and Radiation Staff

Introduction to the physics that enables life and human measurement of living things. This lab introduces principles of electricity, magnetism, light and optics at work in the biological sciences. The syllabus emphasizes electric dipoles as a model for biomolecules, electric fields such as those across cell membranes, electric current, and magnetic fields. Light is developed in terms of electromagnetic radiation, ray optics and photons. The interaction of light with biomolecules to understand basic biological research and medical diagnostics are also covered. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 121L. May not be taken after PHYS 166L. Priority is given to first-year students looking to fulfill medical school application requirements and students seeking to join research labs at Yale. SC o Course cr

* **MB&B 200a / MCDB 300a, Biochemistry** Ronald Breaker and Sigrid Nachtergaele

An introduction to the biochemistry of animals, plants, and microorganisms, emphasizing the relations of chemical principles and structure to the evolution and regulation of living systems. Introductory biology coursework (BIOL 101, BIOL 102, BIOL 103) or equivalent performance on the corresponding biological sciences placement examination; one term of organic chemistry (CHEM 174 or CHEM 220); or with permission of instructor. Note for MB&B majors: this course does not substitute for MB&B 300 and MB&B 301. SC o Course cr

* **MB&B 251La or b / MCDB 301La or b, Laboratory for Biochemistry** Staff

An introduction to current experimental methods in molecular biology, biophysics, and biochemistry. Limited enrollment. Prerequisite: BIOL 101. SC ½ Course cr

MB&B 275a, Biology at the Molecular Level Enrique De La Cruz and Allison

Didychuk

An introductory course for students to learn the key concepts from physics and physical chemistry that govern the structure and function of biomolecules in biology and medicine. Emphasis is placed on atomic-scale biomolecular motions, energy, reaction rates and mechanisms; core elements that underpin the exquisite specificity and regulated control of life processes. This course prepares students for upper level course content where these concepts are revisited. Connections to medicine and research are made through the use of practical examples, laboratory-based activities and training in biologically relevant areas of math, statistics and computer programming. This course is open to all Yale students. For MB&B majors, this course is accepted as fulfillment of one semester of MB&B's two-semester requirement in physical chemistry. Prerequisites: BIOL 101-102, MATH 112 (or equivalent), college level General Chemistry, and high school Physics. SC

MB&B 300a, Principles of Biochemistry I Staff

Discussion of the physical, structural, and functional properties of proteins, lipids, and carbohydrates, three major classes of molecules in living organisms. Energy metabolism and hormone signaling as examples of complex biological processes whose underlying mechanisms can be understood by identifying and analyzing the molecules responsible

for these phenomena. Prerequisites: After BIOL 101 and CHEM 174 or CHEM 220. SC
o Course cr

MB&B 301b, Principles of Biochemistry II Christian Schlieker and Franziska
Bleichert

Building on the principles of MB&B 300 through study of the chemistry and metabolism of DNA, RNA, and proteins. Critical thinking emphasized by exploration of experimental methods and data interpretation, from classic experiments in biochemistry and molecular biology through current approaches. Prerequisite: MB&B 300 or permission of instructor. SC

MB&B 330a / BENG 230a / MCDB 330a / NSCI 324a, Modeling Biological Systems I
Thierry Emonet

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116. BIOL 101-104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

MB&B 361b / BENG 465b / MCDB 361b / NSCI 325b, Modeling Biological Systems II
Joe Howard

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

* **MB&B 364a / MCDB 364a, Light Microscopy: Techniques and Image Analysis**
Joseph Wolenski

A rigorous study of principles and pertinent modalities involved in modern light microscopy. The overall course learning objective is to develop competencies involving advanced light microscopy applications common to multidisciplinary research. Laboratory modules coupled with critical analysis of pertinent research papers cover all major light microscope methods – from the basics (principles of optics, image contrast, detector types, fluorescence, 1P and 2P excitation, widefield, confocal principle, TIRF), to more recent advances, including: superresolution, lightsheet, FLIM/FRET, motion analysis and force measurements. This course is capped at 8 students to promote interactions and ensure a favorable hands-on experience. Priority for enrollment is given to students who are planning on using these techniques in their independent

research. Prerequisites: MCDB 205, PHYS 170/171 or above, either CHEM 161/165 or above; with CHEM 134L, 136L or permission from the instructor. SC

MB&B 365b / EVST 372b, Biochemistry and Our Changing Climate Karla

Neugebauer

Climate change is impacting how cells and organisms grow and reproduce. Imagine the ocean spiking a fever: cold-blooded organisms of all shapes, sizes and complexities struggle to survive when water temperatures go up 2-4 degrees. Some organisms adapt to extremes, while others cannot. Predicted and observed changes in temperature, pH and salt concentration do and will affect many parameters of the living world, from the kinetics of chemical reactions and cellular signaling pathways to the accumulation of unforeseen chemicals in the environment, the appearance and dispersal of new diseases, and the development of new foods. In this course, we approach climate change from the molecular point of view, identifying how cells and organisms#from microbes to plants and animals#respond to changing environmental conditions. To embrace the concept of “one health” for all life on the planet, this course leverages biochemistry, cell biology, molecular biophysics, and genetics to develop an understanding of the impact of climate change on the living world. We consider the foundational knowledge that biochemistry can bring to the table as we meet the challenge of climate change. Prerequisites: MB&B 300/301 or MB&B 200/MCDB 300 or permission of the instructor. Can be taken concurrently with MB&B 301. SC

MB&B 420a, Macromolecular Structure and Biophysical Analysis Yong Xiong and

Joe Howard

Analysis of macromolecular architecture and its elucidation using modern methods of structural biology and biochemistry. Topics include architectural arrangements of proteins, RNA, and DNA; practical methods in structural analysis; and an introduction to diffraction and NMR. Prerequisites: MBB 301 and 302. SC

*** MB&B 425a / MCDB 425a, Basic Concepts of Genetic Analysis** Jun Lu

The universal principles of genetic analysis in eukaryotes. Reading and analysis of primary papers that illustrate the best of genetic analysis in the study of various biological issues. Focus on the concepts and logic underlying modern genetic analysis. Prerequisite: MCDB 202 or pre-approval of instructor. SC

MB&B 435a, Quantitative Approaches in Biophysics and Biochemistry Julien Berro and Yong Xiong

An introduction to quantitative methods relevant to analysis and interpretation of biophysical and biochemical data. Topics include statistical testing, data presentation, and error analysis; introduction to mathematical modeling of biological dynamics; analysis of large datasets; and Fourier analysis in signal/image processing and macromolecular structural studies. Instruction in basic programming skills and data analysis using MATLAB; study of real data from MB&B research groups. Prerequisites: MATH 120 and MB&B 300 or equivalents, or with permission of instructors. QR, SC

MB&B 443b, Advanced Eukaryotic Molecular Biology Mark Hochstrasser, Wendy

Gilbert, Matthew Simon, and Franziska Bleichert

Selected topics in regulation of chromatin structure and remodeling, mRNA processing, mRNA stability, translation, protein degradation, DNA replication, DNA repair, site-specific DNA recombination, and somatic hypermutation. Prerequisites: MB&B 300 and 301, or permission of instructor. SC RP

* **MB&B 445b, Methods and Logic in Molecular Biology** Wendy Gilbert and Julien Berro

An examination of fundamental concepts in molecular biology through analysis of landmark papers. Development of skills in reading the primary scientific literature and in critical thinking. Prerequisites: MB&B 300 and 301. SC RP

MB&B 449a, Medical Impact of Basic Science Joan Steitz, Karla Neugebauer, Seyedtaghi Takyar, George Miller, David Schatz, Daniel DiMaio, and Franziska Bleichert

Examples of recent discoveries in basic science that have elucidated the molecular origins of disease or that have suggested new therapies for disease. Readings from the primary scientific and medical literature, with emphasis on developing the ability to read this literature critically. Prerequisites: MB&B 300 and 301 or equivalents, or permission of instructor. SC

* **MB&B 470a and MB&B 471b, Research in Biochemistry and Biophysics for the Major** Katherine Schilling

Individual laboratory projects under the supervision of a faculty member. Students must submit an enrollment form that specifies the research supervisor by the date that course schedules are due. Students are expected to commit at least ten hours per week to working in a laboratory. Written assignments include a research proposal, due near the beginning of the term, and a research report that summarizes experimental results, due before the beginning of the final examination period. Students receive a letter grade. Up to 2 credits of MB&B 470/471 may be counted toward the MB&B major requirements. Enrollment limited to MB&B majors. Prerequisite: MB&B 251L or permission of the instructor.

* **MB&B 472a and MB&B 473b, Research in Biochemistry and Biophysics** Katherine Schilling

Individual laboratory projects under the supervision of a faculty member. Students must submit an enrollment form that specifies the research supervisor by the date that course schedules are due. Students are expected to commit at least ten hours per week to working in a laboratory. Written assignments include a research proposal, due near the beginning of the term, and a research report that summarizes experimental results, due before the beginning of the final examination period. Students are graded pass/fail. Taken after students have completed two credits of MB&B 470 and 471. These courses do not count toward the major requirements. Prerequisites: MB&B 470, 471 and 251L or permission of the instructor.

* **MB&B 478a and MB&B 479b, Intensive Research in Biochemistry and Biophysics for the Major** Katherine Schilling

Individual laboratory projects under the supervision of a faculty member. Students must submit an enrollment form that specifies the research supervisor by the day that course schedules are due. Students are expected to commit at least twenty hours per week to working in a laboratory. Written assignments include a research proposal, due near the beginning of the term, and a research report that summarizes experimental results, due before the beginning of the final examination period. No more than two course credits count as electives toward the B.S. degree. Enrollment limited to senior MB&B majors. Prerequisite: MB&B 251L or 360L. 2 Course cr per term

*** MB&B 490a or b, The Senior Literature Essay** Katherine Schilling

This course fulfills the MB&B senior requirement for BA/BS majors and may be taken in either the fall or spring term of senior year. Students complete an independent project by reading primary literature and writing a critical review on a topic chosen by the student in any area of molecular biophysics and biochemistry. The chosen topic cannot draw directly on the student's research experiences while enrolled at Yale. For topics drawing directly from a student's research experience, students should enroll in MB&B 491: Senior Research Essay. The course structure first assists the student to identify a topic and then identifies a member of the MB&B faculty with appropriate expertise. The member of faculty meets regularly with the student as the topic is researched, drafted, and submitted at a quality appropriate for publication. A departmental poster session at the end of the semester gives the student the opportunity to disseminate their work to the broader MB&B and Yale community.

MB&B 491a or b, The Senior Research Essay Katherine Schilling

In this class, students complete an independent project by reading primary literature and writing a critical review on a topic chosen by the student in any area of molecular biophysics and biochemistry. The chosen topic must be related to the student's research experiences while enrolled at Yale. For topics that do not draw from a student's research experience, students should enroll in MB&B 490: Senior Literature Essay. The course structure first assists the student to identify a topic and then identifies a member of the MB&B faculty with appropriate expertise. The faculty member, if a member of MB&B, can be the student's research supervisor. The member of faculty meets regularly with the student as the topic is researched, drafted, and submitted at a quality appropriate for publication. A departmental poster session at the end of the semester gives the student the opportunity to disseminate their work to the broader MB&B and Yale community.

Molecular, Cellular, and Developmental Biology (MCDB)

*** MCDB 040b, The Science and Politics of Cancer** Robert Bazell

Fundamentals of cell biology, Darwinian evolution, immunology, and genetics that underlie cancer; the history of cancer science and treatment; historical and current policy issues. Prerequisite: AP Biology or equivalent. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

*** MCDB 065a, The Science and Politics of HIV/AIDS** Robert Bazell

Study of the basic virology and immunology of HIV/AIDS, along with its extraordinary historical and social effects. Issues include the threat of new epidemics emerging from a changing global environment; the potential harm of conspiracy theories based on false science; and how stigmas associated with poverty, gender inequality, sexual preference, and race facilitate an ongoing epidemic. For all first-year students regardless of whether they are considering a science major. Prerequisite: AP Biology or equivalent. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

*** MCDB 099b / MB&B 099b / MENG 099b / PHYS 099b / SCIE 099b, Introduction to Research Methods in Physics and Biology: Preparing for a First Research Experience** Simon Mochrie

Spanning both the classroom and laboratory, this seminar course provides an immersive introduction to scientific research. Students build practical laboratory skills, computational competency, and begin to build fluency in the structures and modes of communication that define modern research. The course also facilitates identification of a laboratory mentor and devising a research proposal (with mentorship) for competitive summer research fellowship applications. This class is open to first-year students, interested in any STEM major, who have no prior research experience. This course does not count toward major requirements. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

MCDB 105a or b / MB&B 105a or b, Biology, the World, and Us Staff

This course is for non-science majors who wish to gain an understanding of modern biology by examining the scientific basis of current issues. We'll consider issues related to: i) pandemics and global infectious disease; ii) the climate crisis; iii) the future of genetics and the new green revolution. Many of the topics have an increasingly large impact on our daily lives. The issues are both social and biological, and it's crucial that social debate be based on a clear understanding of the underlying science. The instructors will explain the scientific foundation beneath each issue. We'll emphasize the nature of science as a process of inquiry rather than a fixed body of terminology and facts. The course is not intended to be a comprehensive survey of biology. SC o Course cr

*** MCDB 106a / E&EB 106a / HLTH 155a, Biology of Malaria, Lyme, and Other Vector-Borne Diseases** Alexia Belperron

Introduction to the biology of pathogen transmission from one organism to another by insects; special focus on malaria, dengue, and Lyme disease. Biology of the pathogens including modes of transmission, establishment of infection, and immune responses; the challenges associated with vector control, prevention, development of vaccines, and treatments. Intended for non-science majors; preference to first-years and sophomores. Prerequisite: high school biology. SC

*** MCDB 109b, Immunity and Contagion** Staff

This interdisciplinary course is for students that want to learn about infectious diseases, pandemics, and the immune system. The immune system evolved to fight pathogens while maintaining homeostasis with our microbiome. The first part of the course is on how the immune system works; this is followed by discussion of different microbes and associated pandemics. This includes flu (1918 pandemic), HIV (AIDS), human papillomavirus (link to cancer), and coronaviruses (COVID-19). Other topics include the human microbiome, cancer immunotherapy and vaccines. Artwork and relevant history are included with a class at the Yale Art Gallery and a class at the medical school. SC o Course cr

MCDB 200b, Molecular & Biochemical Principles of Gene Function Staff

The way we think about our health, our material world, and even our national economy, is undergoing radical change because of the revolution in biology. In this course, students learn the basic concepts that drive this revolution to become active and informed participants. Specifically, this course provides a comprehensive overview of modern molecular biology and its applications. Topics include the structure, function,

and chemical behavior of biological macromolecules (DNA, RNA, and protein), chromosome and genome organization, replication and maintenance of the genome, genome editing, transcriptional and translational regulation, structure and function of regulatory noncoding RNAs, RNA splicing, editing and modification and first principles of synthetic biology. Upon completion of the course, students understand the molecular basis for regulated gene expression and the many implications for medicine, biotechnology, and biological engineering. Prerequisites: CHEM 161 or 163, and BIOL 101 (or placement out of BIOL 101 via BIOL 101 placement exam, or via AP5 or IB7HL with permission of core course instructor). SC o Course cr

MCDB 201Lb, Molecular Biology Laboratory Staff

Basic molecular biology training in a project-based laboratory setting. Experiments analyze gene function through techniques of PCR, plasmid and cDNA cloning, DNA sequence analysis, and protein expression and purification. Instruction in experimental design, data analysis, and interpretation. Concurrently with or after MCDB 200, or with permission from instructor. For freshmen and sophomores interested in research integrated laboratory experience. Special registration procedures apply. Interested students must contact the instructor and attend an organizational meeting during the first week of classes. WR, SC o Course cr

MCDB 202a, Genetics Stephen Dellaporta and Josh Gendron

An introduction to classical, molecular, and population genetics of both prokaryotes and eukaryotes and their central importance in biological sciences. Emphasis on analytical approaches and techniques of genetics used to investigate mechanisms of heredity and variation. Topics include transmission genetics, cytogenetics, DNA structure and function, recombination, gene mutation, selection, and recombinant DNA technology. Prerequisite: BIOL 103 or equivalent performance on the corresponding biological sciences placement examination. SC o Course cr

* **MCDB 203La, Laboratory for Genetics** Staff

Introduction to laboratory techniques used in genetic analysis. Genetic model organisms – bacteria, yeast, *Drosophila*, and *Arabidopsis* – are used to provide practical experience with various classical and molecular genetic techniques including cytogenetics; complementation, epistasis, and genetic suppressors; mutagenesis and mutant analysis, recombination and gene mapping, isolation and manipulation of DNA, and transformation of model organisms. Concurrently with or after MCDB 202. SC o Course cr

MCDB 205b, Cell Biology Staff

A comprehensive introductory course in cell biology. Emphasis on the general principles that explain the molecular mechanisms of cellular function. Prerequisites: BIOL 101 and 102, or equivalent performance on the corresponding biological sciences placement examinations, or a score of 5 on the Advanced Placement test in Biology, or a score of 710 or above on the SAT Biology M test, or MCDB 200. SC o Course cr

MCDB 210a or b, Developmental Biology Scott Holley and Staff

A survey of the molecular and genetic control of embryonic development, cell-cell communication, and cell differentiation. Emphasis on mechanistic investigation in model organisms that reveal fundamental concepts explaining human birth defects and disease. Topics include gastrulation; neural and mesoderm induction; limb development; heart and vascular development; craniofacial development; adult and

embryonic stem cells; regeneration; evolution and development. Prerequisites: BIOL 101, 102, and 103, or equivalent performance on the corresponding biological sciences placement examinations. SC

MCDB 221La, Laboratory for Foundations of Biology Staff

This lab complements the BIOL 101-103 series. An introduction to research and common methodologies in the biological sciences, with emphasis on the utility of model organisms. Techniques and methods commonly used in biochemistry, cell biology, genetics, and molecular and developmental biology; experimental design; data analysis and display; scientific writing. With permission of instructor or concurrently with or after BIOL 101, 102 or 103. WR, SC o Course cr

MCDB 250b, Biology of Reproduction Hugh Taylor

Introduction to reproductive biology, with emphasis on human reproduction. Development and hormonal regulation of reproductive systems; sexuality, fertilization, and pregnancy; modern diagnosis and treatment of reproductive and developmental disorders; social and ethical issues. BIOL 101, 102, and 103, or equivalent performance on the corresponding biological sciences placement examinations, or a score of 5 on the Advanced Placement test in Biology, or a score of 710 or above on the SAT Biology M test SC o Course cr

MCDB 251Lb, Laboratory for Biology of Reproduction and Development Seth Guller

Laboratory focus on aspects of human reproductive biology and connections with normal reproductive outcomes. Clinically relevant consideration of human tissue and cell models to study ovarian, uterine, and placental structure and function. Testing of the role of tissue specific cellular differentiation; human trophoblast function; and the roles of steroid hormones in the regulation of uterine, placental, and ovarian function. Mouse tissue models will be employed. Enrollment limited. Concurrently with or after MCDB 210 or 250. Not open to first-year students. Special registration procedures apply; students must consult the instructor prior to the first week of classes. SC ½ Course cr

MCDB 290b, Microbiology Jing Yan and John Wertz

Cell structure of bacteria, bacterial genetics, microbial evolution and diversity, bacterial development, microbial interaction, chemotaxis and motility, gene regulation, microbial genomics and proteomics, CRISPR, metabolism, infectious diseases, mechanisms of pathogenesis, host defense systems, viruses, gut microbiota in health and disease. Prerequisites: BIOL 101, 102, and 103, or equivalent performance on the corresponding biological sciences placement examinations; or one term of biochemistry, or cell biology, or genetics; or with permission of instructor. SC

* **MCDB 291Lb, Laboratory for Microbiology** Amaleah Hartman

Practical approaches used when working with microbes, primarily bacteria. Topics include microscopy, culture techniques, biochemical/metabolic assays, and basic environmental and medical microbiology. Concurrently with or after MCDB 290. Electronic permission key required; students should contact the instructor prior to the first class meeting. SC ½ Course cr

* **MCDB 300a / MB&B 200a, Biochemistry** Ronald Breaker and Sigrid Nachtergaele

An introduction to the biochemistry of animals, plants, and microorganisms, emphasizing the relations of chemical principles and structure to the evolution and regulation of living systems. Introductory biology coursework (BIOL 101, BIOL

102, BIOL 103) or equivalent performance on the corresponding biological sciences placement examination; one term of organic chemistry (CHEM 174 or CHEM 220); or with permission of instructor. Note for MB&B majors: this course does not substitute for MB&B 300 and MB&B 301. SC o Course cr

*** MCDB 301La or b / MB&B 251La or b, Laboratory for Biochemistry** Staff

An introduction to current experimental methods in molecular biology, biophysics, and biochemistry. Limited enrollment. Prerequisite: BIOL 101. SC ½ Course cr

*** MCDB 303Lb, Advanced Molecular Biology Laboratory** Maria Moreno

A laboratory course that provides advanced biology research skills. Weekly workshops focus on laboratory practice, experimental design, data analysis, reading of primary literature, scientific presentations, and scientific writing skills. Application of these skills in project-based laboratory training sponsored by a faculty member. Enrollment limited. Special registration procedures apply; interested students must contact the instructor and attend an organizational meeting. This class is recommended to students in the sciences who are in their junior year and will be completing a senior research project requirement for graduation. SC RP

*** MCDB 310a / BENG 350a, Physiological Systems** Staff

Regulation and control in biological systems, emphasizing human physiology and principles of feedback. Biomechanical properties of tissues emphasizing the structural basis of physiological control. Conversion of chemical energy into work in light of metabolic control and temperature regulation. Prerequisites: CHEM 165 or 167 (or CHEM 113 or 115), or PHYS 180 and 181; MCDB 120, or BIOL 101 and 102. SC o Course cr

MCDB 320a / NSCI 320a, Neurobiology Haig Keshishian and Paul Forscher

The excitability of the nerve cell membrane as a starting point for the study of molecular, cellular, and systems-level mechanisms underlying the generation and control of behavior. At least 1 semester of college chemistry is strongly recommended. SC o Course cr

MCDB 321La / NSCI 321La, Laboratory for Neurobiology Haig Keshishian

Introduction to the neurosciences. Projects include the study of neuronal excitability, sensory transduction, CNS function, synaptic physiology, and neuroanatomy. Concurrently with or after MCDB 320. SC ½ Course cr

MCDB 329a / NSCI 329a, Sensory Neuroscience Through Illusions Damon Clark and Michael O'Donnell

Animals use sensory systems to obtain and process information about the environment around them. Sensory illusions occur when our sensory systems provide us with surprising or unexpected percepts of the world. The goal of this course is to introduce students to sensory neuroscience at the levels of sensor physiology and of the neural circuits that process information from sensors. The course is centered around sensory illusions, which are special cases of sensory processing that can be especially illustrative, as well as delightful. These special cases are used to learn about the general principles that organize sensation across modalities and species. Prerequisites: BIOL 101-104; NSCI 160 or NSCI 320 or permission of instructor. SC

MCDB 330a / BENG 230a / MB&B 330a / NSCI 324a, Modeling Biological Systems I

Thierry Emonet

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116. BIOL 101-104, or with permission of instructors. This course also benefits students who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

*** MCDB 342La, Laboratory in Nucleic Acids I** F Kenneth Nelson

A project from a research laboratory within the MCDB department, using technologies from molecular and cell biology. Laboratories meet twice a week for the first half of the term. Concurrently with or after MCDB 202, 205, or 300. Enrollment limited. Special registration procedures apply; students should contact the instructor during January of the year you intend to take the course. SC o Course cr

*** MCDB 343La, Laboratory in Nucleic Acids II** F Kenneth Nelson

Continuation of MCDB 342L to more advanced projects in molecular and cell biology, such as microarray screening and analysis, next-generation DNA sequencing, or CRISPR/Cas editing of genes. Laboratories meet twice a week for the second half of the term. 0.5 Yale College course credit(s) Enrollment limited. Special registration procedures apply; students should contact the instructor during January of the year you intend to take the course. Prerequisite; MCDB 342L or permission of instructor. SC o Course cr

*** MCDB 344Lb, Experimental Techniques in Cellular Biology** Joseph Wolenski

An inquiry-based approach to research in cell and molecular biology, with emphasis on experimental techniques commonly used in modern biomedical laboratories. Research is module-based and covers pertinent and timely topics. Methods include SDS-PAGE, immunoblotting, immunoprecipitation of proteins, column chromatography, mammalian cell culture, cell fractionation, cell transfection, DNA purification, PCR, and phase contrast and confocal microscopy. Meets during January and February. Prerequisite: MCDB 205. Special registration procedures apply; interested students must contact the instructor at least eighteen months in advance. SC ½ Course cr

*** MCDB 345Lb, Experimental Strategies in Cellular Biology** Joseph Wolenski

Continuation of MCDB 344L, with increased emphasis on experimental design, independent research, presentation of data and research seminars. Students develop semi-independent research projects in modern biomedical research. Emphasis on key components of being a successful principal investigator, including benchwork, seminar presentations, lab meetings, and critical analysis of data. Prepares for MCDB 475, 485,

or 495. Meets during March and April. Prerequisite: MCDB 344L. Special registration procedures apply; interested students should contact the instructor. SC ½ Course cr

* **MCDB 350a, Epigenetics** Yannick Jacob and Josien van Wolfswinkel

Study of epigenetic states and the various mechanisms of epigenetic regulation, including histone modification, DNA methylation, nuclear organization, and regulation by non-coding RNAs. Detailed critique of papers from primary literature and discussion of novel technologies, with specific attention to the impact of epigenetics on human health. Introductory courses (BIOL 101-104) and two MCDB 200-level courses (strongly recommended: MCDB 202 and MCDB 200 or MCDB 210) or instructor permission. SC 0 Course cr

* **MCDB 355a, The Cytoskeleton, Associated Proteins, and Disease** Surjit Chandhoke

In-depth discussion of the cytoskeleton, proteins associated with the cytoskeleton, and diseases that implicate members of these protein families. Preference given to seniors in the MCDB major. Prerequisites: BIOL 101-104 *and* at least one MCDB 200-level course. SC

MCDB 361b / BENG 465b / MB&B 361b / NSCI 325b, Modeling Biological Systems II

Joe Howard

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

* **MCDB 364a / MB&B 364a, Light Microscopy: Techniques and Image Analysis**

Joseph Wolenski

A rigorous study of principles and pertinent modalities involved in modern light microscopy. The overall course learning objective is to develop competencies involving advanced light microscopy applications common to multidisciplinary research. Laboratory modules coupled with critical analysis of pertinent research papers cover all major light microscope methods—from the basics (principles of optics, image contrast, detector types, fluorescence, 1P and 2P excitation, widefield, confocal principle, TIRF), to more recent advances, including: superresolution, lightsheet, FLIM/FRET, motion analysis and force measurements. This course is capped at 8 students to promote interactions and ensure a favorable hands-on experience. Priority for enrollment is given to students who are planning on using these techniques in their independent research. Prerequisites: MCDB 205, PHYS 170/171 or above, either CHEM 161/165 or above; with CHEM 134L, 136L or permission from the instructor. SC

* **MCDB 370b, Biotechnology** Staff

The principles and applications of cellular, molecular, and chemical techniques that advance biotechnology. The most recent tools and strategies used by industrial labs, academic research, and government agencies to adapt biological and chemical compounds as medical treatments, as industrial agents, or for the further study of biological systems. Prerequisite: MCDB 200, 202, or 300. SC 0 Course cr

* **MCDB 375b, Human Biology: Research Methods, Questions, and Societal impact**

Valerie Horsley and Haig Keshishian

This course is intended for upper level MCDB majors and addresses human biology and human subjects research methods and its impact on our understanding of identity. The first third of the course evaluates human subjects research methods and the impact of genetics research on the concept of identity. In the second section of the course, we examine the biology and research that influences identity stereotypes. The last third of the term we examine the biology and research methods to study past and current issues in society related to human health and biology. Prerequisites: BIOL 101-104, and two MCDB 200-level courses or with permission of instructor. SC

* **MCDB 380a, Advances in Plant Molecular Biology** Yannick Jacob, Josh Gendron, and Vivian Irish

The study of basic processes in plant growth and development to provide a foundation for addressing critical agricultural needs in response to a changing climate. Topics include the latest breakthroughs in plant sciences with emphasis on molecular, cellular, and developmental biology; biotic and abiotic plant interactions; development, genomics, proteomics, epigenetics and chemical biology in the context of plant biology; and the current societal debates about agrobiotechnology. Prerequisites: BIOL 101-104 and two MCDB 200-level courses, or permission of instructor. SC

* **MCDB 425a / MB&B 425a, Basic Concepts of Genetic Analysis** Jun Lu

The universal principles of genetic analysis in eukaryotes. Reading and analysis of primary papers that illustrate the best of genetic analysis in the study of various biological issues. Focus on the concepts and logic underlying modern genetic analysis. Prerequisite: MCDB 202 or pre-approval of instructor. SC

* **MCDB 430a, Biology of the Immune System** Staff

The development of the immune system. Cellular and molecular mechanisms of immune recognition. Effector responses against pathogens. Immunologic memory and vaccines. Human diseases including allergy, autoimmunity, immunodeficiency, and HIV/AIDS. After MCDB 300. SC o Course cr

* **MCDB 435b, Landmark Papers in Cell Biology** Mark Mooseker

This seminar involves discussion and critical evaluation of selected research papers (1-2/week) that were important in determining the directions of modern cell biological research. Emphasis is on the nature of the problem, evaluation of the experimental approaches and results, and the authors' interpretation of the results. The format is round table discussion of the paper, method by method, figure by figure. All are expected to be actively engaged in these discussions which require a thorough reading of the papers as well as further background reading particularly with respect to key methods used in the paper (e.g. how is EM autoradiography performed). Prerequisites: Foundations in Biology 101-104, although MCDB 205 (Cell Biology) would be highly beneficial. For background purposes, several copies of various cell biology texts will be placed on closed reserve at Bass. Permission of instructor required. Enrollment preference is given to seniors. SC

* **MCDB 450b, The Human Genome** Stephen Dellaporta

A focus on the primary scientific literature covering the principles of genomics and its application to the investigation of complex human traits and diseases. Topics include the technology of genome sequencing and resequencing, the characterization

of sequence and structural variation in human populations, haplotype and linkage disequilibrium analysis, genome-wide association studies, the comparative genomics of humans and our closest relatives, and personalized genomics and medicine. Enrollment limited to 15. Students should contact the instructor prior to the first week of classes. Prerequisite: MCDB 202; a course in statistics is strongly recommended. SC

*** MCDB 469b / AMST 467b / HSHM 469b, Biology of Humans through History, Science, and Society** Valerie Horsley

This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

*** MCDB 474a or b, Independent Research** Joseph Wolenski and Staff

Research project under faculty supervision taken Pass/Fail. This is the only independent research course available to underclassmen. Students are expected to spend approximately ten hours per week in the laboratory. To register, the student must submit a form, which is available at <http://mcdb.yale.edu/forms> as well as on the course site on Canvas@Yale, and a written plan of study with bibliography, approved by the faculty research adviser. The form and proposal must be uploaded to Canvas@Yale by the end of the second week of classes. A final research report is required at the end of the term. Students who take this course more than once must reapply each term. Guidelines for the course should be obtained from the office of the director of undergraduate studies or downloaded from the Canvas@Yale server.

*** MCDB 475a or b, Senior Independent Research** Joseph Wolenski and Staff

Research project under faculty supervision, ordinarily taken to fulfill the senior requirement. This course is only available to MCDB seniors and they are awarded a letter grade. Students are expected to spend approximately ten hours per week in the laboratory. To register, the student must prepare a form, which is available at <https://mcdb.yale.edu/academics/undergraduate-program/undergraduate-forms-and-worksheets> as well as on the course site on Canvas@Yale, and a written plan of study with bibliography, approved by the faculty research adviser. The form and proposal must be uploaded to Canvas@Yale by the end of the second week of classes. The final research paper is due in the hands of the sponsoring faculty member, with a copy uploaded to Canvas@Yale, by the last day of classes. Students who take this course more than once must reapply each term; students planning to conduct two terms of research should consider enrolling in MCDB 485, 486. Students should line up a research laboratory during the term preceding the research. Fulfills the senior requirement for the B.A. degree if taken in the senior year. Two consecutive terms of this course fulfill the senior requirement for the B.S. degree if at least one term is taken in the senior year.

*** MCDB 485a or b and MCDB 486a or b, Senior Research** Joseph Wolenski and Staff

Individual two-term laboratory research projects under the supervision of a faculty member. For MCDB seniors only. Students are expected to spend ten to twelve hours

per week in the laboratory, and to make presentations to students and advisers. Written assignments include a short research proposal summary due at the beginning of the first term, a grant proposal due at the end of the first term, and a research report summarizing experimental results due at the end of the second term. Students are also required to present their research in either the fall or the spring term. A poster session is held at the end of the spring term. Students should line up a research laboratory during the term preceding the research. Guidelines for the course may be obtained at <http://mcdb.yale.edu/forms> and on the course site on Canvas@Yale. Written proposals are due by the end of the second week of classes. Fulfills the senior requirement for the B.S. degree if taken in the senior year.

* **MCDB 495a or b and MCDB 496a or b, Senior Research Intensive** Joseph Wolenski and Staff

Individual two-term directed research projects in the field of biology under the supervision of a faculty member. For MCDB seniors only. Before registering, the student must be accepted by a Yale faculty member with a research program in experimental biology and obtain the approval of the instructor in charge of the course. Students spend approximately twenty hours per week in the laboratory, and make written and oral presentations of their research to students and advisers. Written assignments include a short research proposal summary due at the beginning of the first term, a grant proposal due at the end of the first term, and a research report summarizing experimental results due at the end of the second term. Students must attend a minimum of three research seminar sessions (including their own) per term. Students are also required to present their research during both the fall and spring terms. A poster session is held at the end of the spring term. Guidelines for the course may be obtained at <http://mcdb.yale.edu/forms> and on the course site on Canvas@Yale. Written proposals are due by the end of the second week of classes. Fulfills the senior requirement for the B.S. degree with an intensive major. 2 Course cr per term

Music (MUSI)

* **MUSI 006a, Musical Genius** Lindsay Wright

Is there such a thing as “musical genius”? What exactly are the qualifications, and who gets to decide? In this course, we explore how the answers to these questions have shifted in the past three centuries, investigating when and where—and especially how and why—the notion of musical genius became so pervasive and powerful. To this end, class discussions draw upon a range of materials: we listen to music; parse primary historical sources; analyze news coverage and podcast episodes; and read from a range of academic subfields, including music history, ethnomusicology, sociology, psychology, philosophy, disability studies, critical race studies, gender and sexuality studies, and music education. We compare and critically analyze discourse about a range of figures dubbed musical geniuses, from L. v. Beethoven and W. A. Mozart to Thomas “Blind Tom” Wiggins, Aretha Franklin, and Vijay Iyer. Building upon this historical context, we also interrogate the significance of musical genius in today’s world, considering the proliferation of genius-themed self-help literature, the politics and procedures of the Macarthur Genius Grant, invocations of genius and talent on social media, and additional issues of interest to students. Beyond gaining a robust understanding of the

history of ideas like genius and talent, we contemplate the benefits and challenges of conceptual history as a scholarly enterprise more broadly. HU

*** MUSI 035b / CPSC 035b, Twenty-First Century Electronic and Computer Music Techniques** Scott Petersen

Exploration of twenty-first century electronic and computer music through the diverse subjects and issues at the intersection of technology and new music. How computers have changed and challenged the analysis, composition, production, and appreciation of music over the last fifty years. Knowledge of basic music theory and the ability to read Western musical notation is assumed. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. QR

*** MUSI 054a / CLCV 051a / HUMS 061a / LITR 029a / THST 051a, Performing Antiquity** Pauline LeVen

This seminar introduces students to some of the most influential texts of Greco-Roman Antiquity and investigates the meaning of their “performance” in different ways: 1) how they were musically and dramatically performed in their original context in Antiquity (what were the rhythms, the harmonies, the dance-steps, the props used, etc.); 2) what the performance meant, in socio-cultural and political terms, for the people involved in performing or watching it, and how performance takes place beyond the stage; 3) how these texts are performed in modern times (what it means for us to translate and stage ancient plays with masks, a chorus, etc.; to reenact some ancient institutions; to reconstruct ancient instruments or compose “new ancient music”); 4) in what ways modern poems, plays, songs, ballets constitute forms of interpretation, appropriation, or contestation of ancient texts; 5) in what ways creative and embodied practice can be a form of scholarship. Besides reading ancient Greek and Latin texts in translation, students read and watch performances of modern works of reception: poems, drama, ballet, and instrumental music. A few sessions are devoted to practical activities (reenactment of a symposium, composition of ancient music, etc.). Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

*** MUSI 077a, Musical Icons of the 1960s: John Coltrane and Jimi Hendrix** Michael Veal

A survey of the lives and art of these two musical icons which examines their work in the context of the social, political, technological, and cultural developments of the 1960s. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

*** MUSI 081a / ER&M 081a / SOCY 081a, Race and Place in British New Wave, K-Pop, and Beyond** Grace Kao

This seminar introduces you to several popular musical genres and explores how they are tied to racial, regional, and national identities. We examine how music is exported via migrants, return migrants, industry professionals, and the nation-state (in the case of Korean Popular Music, or K-Pop). Readings and discussions focus primarily on the British New Wave (from about 1979 to 1985) and K-Pop (1992-present), but we also discuss first-wave reggae, ska, rocksteady from the 1960s–70s, British and American punk rock music (1970s–1980s), the precursors of modern K-Pop, and have a brief discussion of Japanese City Pop. The class focuses mainly on the British New Wave and K-Pop because these two genres of popular music have strong ties to particular geographic areas, but they became or have become extremely popular in other parts of

the world. We also investigate the importance of music videos in the development of these genres. Enrollment limited to first year students. Pre-registration required: see under First Year Seminar Program. SO

*** MUSI 137a / HUMS 139a, Western Philosophy in Four Operas 1600-1900** Gary Tomlinson

This course intensively studies four operas central to the western repertory, spanning the years from the early 17th to the late 19th century: Monteverdi's *Orfeo*, Mozart's *Don Giovanni*, Wagner's *Die Walküre* (from *The Ring of the Nibelungs*), and Verdi's *Simon Boccanegra*. The course explores the expression in these works of philosophical stances of their times on the human subject and human society, bringing to bear writings contemporary to them as well as from more recent times. Readings include works of Ficino, Descartes, Rousseau, Wollstonecraft, Schopenhauer, Kierkegaard, Douglass, Marx, Nietzsche, Freud, and Adorno. We discover that the expression of changing philosophical stances can be found not only in dramatic themes and the words sung, but in the changing natures of the musical styles deployed. HU

*** MUSI 185a / THST 236a, American Musical Theater History** Dan Egan
Critical examination of relevance and context in the history of the American musical theater. Historical survey, including nonmusical trends, combined with text and musical analysis. Limited enrollment. Interested students should contact dan.egan@yale.edu for application requirements. WR, HU

*** MUSI 207a, Commercial and Popular Music Theory** Staff
An introduction to music-theory analysis of commercial and popular song (with a focus on American and British music of the past 50 years, across multiple genres). Coursework involves study of harmony, voice leading and text setting, rhythm and meter, and form, with assigned reading, listening, musical transcription and arranging, and written/oral presentation of analysis. Prerequisite: Completion of a 100- or 200-level music theory course or the corresponding placement exam, and/or permission of instructor. HU o Course cr

*** MUSI 210a, Counterpoint, Harmony, and Form: 1500–1800** Daniel Harrison
A concentrated investigation of basic principles and techniques of period musical composition through study of strict polyphonic voice leading, figuration, harmonic progression, phrase rhythm, and small musical forms. HU

*** MUSI 218a, Aural Skills for Tonal Music** Nathaniel Adam
Tonal music theory topics with an emphasis on sight-sightreading, rhythm, melodic and harmonic dictation, and aural analysis. Prerequisite: Completion of MUSI 110, or any 200-level MUSI course, or the following: ability to match pitch and sing a major scale; knowledge of standard staff notation (treble/bass clefs); knowledge of major/minor key signatures; knowledge of basic time signatures; knowledge of intervals; knowledge of triads. HU RP o Course cr

*** MUSI 219a, Aural Skills for Chromatic Music** Nathaniel Adam
Study of chromatic tonal music theory topics through sightreading, transcription, aural analysis, and improvisation. Must have already taken MUSI 218, or demonstrate the following prerequisites: • Knowledge of all key signatures • Knowledge of treble, bass, and c clefs • Ability to sing/match pitch • Ability to perform roman-numeral analysis • Ability to perform harmonic dictation of diatonic music HU

*** MUSI 220a, The Performance of Chamber Music** Wendy Sharp

Coached chamber music emphasizing the development of ensemble skills, familiarization with the repertoire, and musical analysis through performance. Admission by audition only. May be repeated for credit. For audition information e-mail wendy.sharp@yale.edu. Credit for MUSI 220 only on completion of MUSI 221.
½ Course cr

*** MUSI 223a, Near Eastern and Balkan Ensemble** Ian MacMillen

An introduction to the ensemble musics of West Asia/Southeast Europe and their theoretical, cultural, and aesthetic traditions. Students learn repertoire and approaches to ornamentation, improvisation, and meter (including additive *aksak* meters like 7/8 and 11/8) on their own instruments and voice parts. Instruction on traditional regional instruments is also offered. The course culminates in a public ensemble performance. This course may be repeated for credit. Some previous musical experience is required.
RP

*** MUSI 230a, Composing for Musical Theater** Joshua Rosenblum and Dan Egan

This course is open to all students (including graduate programs) and from any major, although priority is given to music majors. Knowledge of the basics of music theory and music notation is required, and some familiarity with the musical theater idiom is expected. Some prior composing experience is recommended. Piano skills are very helpful, but not required. Normally the class size is limited, so that all assignments can be performed and fully considered during the class meeting time. Prerequisite: MUSI 110 or equivalent. Enrollment limited to 12. Please contact joshua.rosenblum@yale.edu with any questions about eligibility. HU RP

*** MUSI 232a, Central Javanese Gamelan Ensemble** Phil Acimovic

An introduction to performing the orchestral music of central Java and to the theoretical and aesthetic discourses of the gamelan tradition. Students form the nucleus of a gamelan ensemble that consists primarily of tuned gongs and metallophones; interested students may arrange for additional private instruction on more challenging instruments. The course culminates in a public performance by the ensemble. This course may be repeated for credit. No previous musical experience required. RP

*** MUSI 238a, Contemporary Chamber Music Performance** Maiani da Silva

Contemporary chamber music ensemble that emphasizes collaborative workshopping methods for the performance of recent professional repertoire and pieces written by student and faculty composers. Students learn about musical analysis through performance, extended techniques, and the instrumentalists' role in bringing to life a new piece. Admission by audition only. Students must bring their instruments to class.
½ Course cr

*** MUSI 240a, The Performance of Early Music** Grant Herreid

A study of musical styles of the twelfth through early eighteenth centuries, including examination of manuscripts, musicological research, transcription, score preparation, and performance. Students in this class form the nucleus of the Yale Collegium Musicum and participate in a concert series at the Beinecke Library. Admission by audition only. May be repeated for credit. For audition information e-mail grant.herreid@yale.edu. HU RP

* **MUSI 328a, Introduction to Conducting** William Boughton

An introduction to conducting through a detailed study of the problems of baton technique. Skills applied to selected excerpts from the standard literature, including concertos, recitatives, and contemporary music.

* **MUSI 345a, Lessons** Kyung Yu

Individual instruction in the study and interpretation of musical literature. No more than four credits of lessons can be applied towards the 36-credit degree requirement. Auditions for assignment to instructors (for both credit and noncredit lessons) are required for first year and some returning students, and are held only at the beginning of the fall term. For details, see the Music department's program description in the YCPS.

MUSI 353a, Western Art Music: 1968#Present Trevor Baca

A survey of musical practices, institutions, genres, styles, and composers in Europe, the Americas and Asia from 1968 to the present. This class prioritizes the identification of pieces, composers and stylistic practice through a study of scores and recordings. HU

* **MUSI 419a, Arts of Fugue** Daniel Harrison

The seminar examines theoretical and analytical issues associated with fugal procedures, ca. 1650–present, with special focus on the work of J.S. Bach. Harmonic-contrapuntal and hermeneutical (e.g., rhetorical) analyses of individual works are supported by readings modeling both approaches. Work consists of background reading in analysis and history, structural analysis of individual works, and, optionally, the composition of a fugue à 3 on a given subject. Prerequisite: MUSI 210 or equivalent, with permission of instructor. HU

* **MUSI 420a, Composition Seminar III** Kathryn Alexander

Advanced analytic and creative projects in music composition and instrumentation, with a focus on writing for chamber ensembles. Ongoing study of evolving contemporary procedures and compositional techniques. Group and individual lessons to supplement in-class lectures. Admission by audition only. May be repeated for credit. Enrollment limited to 15. To audition, students should email two recent pieces (PDF scores and MP3 recordings) to Prof. Kathryn Alexander when requesting permission to take the course. Students with any other questions should contact the instructor at kathryn.alexander@yale.edu. Prerequisites: Both MUSI 320 and 321. RP

MUSI 422a / ART 371a, Sound Art Martin Kersels and Brian Kane

Introduction to sound art, a contemporary artistic practice that uses sound and listening as mediums, often creating psychological or physiological reactions as part of the finished artwork. The history of sound art in relation to the larger history of art and music; theoretical underpinnings and practical production; central debates and problems in contemporary sound art. Includes creation and in-class critique of experimental works. HU

MUSI 427b / CPSC 432b, Computer Music: Sound Representation and Synthesis
Scott Petersen

Study of the theoretical and practical fundamentals of computer-generated music, with a focus on low-level sound representation, acoustics and sound synthesis, scales and tuning systems, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223. QR

MUSI 428a / CPSC 431a, Computer Music: Algorithmic and Heuristic Composition

Scott Petersen

Study of the theoretical and practical fundamentals of computer-generated music, with a focus on high-level representations of music, algorithmic and heuristic composition, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223. QR

*** MUSI 445a, Advanced Lessons** Kyung Yu

Individual instruction for advanced performers in the study and interpretation of musical literature. No more than four credits of lessons can be applied towards the 36-credit degree requirement. Auditions for assignment to instructors (for both credit and noncredit lessons) are required for first year and some returning students, and are held only at the beginning of the fall term. For details, see the Music department's program description in the YCPS.

*** MUSI 449a, Jazz Improvisation** Wayne Escoffery

In this course students study basic, intermediate, and advanced concepts of improvisation and learn the essentials for the *Jazz Language* through solo transcription and analysis. Students learn how to use vocabulary (or musical phrases) and a variety of improvisational devices and techniques over common chords and chord progressions. Upon completion of the course students have a deeper understanding of what it takes to become a great improviser, what to practice and how to practice it, and how to go about expanding their *Jazz Vocabulary* in order to naturally develop a unique improvisational voice. Students are required to bring their instruments to class. Prerequisite: Basic understanding of Jazz nomenclature and some experience improvising is advised. Admission by audition only. Permission of the instructor is required. ½ Course cr

*** MUSI 450a / AFAM 243a / AMST 243a, Black Arts Criticism: Intellectual Life of Black Culture from W.E.B. DuBois to the 21st Century** Daphne Brooks

This course traces the birth and evolution of Black arts writing and criticism—its style and content, its major themes and groundbreaking practices—from the late nineteenth century through the 2020s. From the innovations of W.E.B. DuBois, Pauline Hopkins, and postbellum Black arts journalists to the breakthroughs of Harlem Renaissance heavyweights (Zora Neale Hurston, Langston Hughes and others), from the jazz experimentalism of Ralph Ellison and Albert Murray to the revolutionary criticism of Amiri Baraka, Lorraine Hansberry, James Baldwin, Phyl Garland and others, this class explores the intellectual work of pioneering writers who produced radical knowledge about Black culture. Its second half turns to the late twentieth and twenty-first century criticism of legendary arts journalists, scholars and critics: Toni Morrison, Thulani Davis, Margo Jefferson, Hilton Als, Greg Tate, Farah J. Griffin, Joan Morgan, Danyel Smith, Wesley Morris, Hanif Abdurraqib, and others. Emphasis will be placed on music, literary, film, and theater/performance arts writing. Prerequisite: one or more AFAM courses. HU RP

* **MUSI 462a / ENGL 205a / HUMS 200a / LITR 195a, Medieval Songlines** Ardis Butterfield

Introduction to medieval song in England via modern poetic theory, material culture, affect theory, and sound studies. Song is studied through foregrounding music as well as words, words as well as music. WR, HU

* **MUSI 464a / THST 382a, American Opera Today: Explorations of a Burgeoning Industry** Gundula Kreuzer and Allison Chu

Contemporary opera constitutes one of the most vibrant sectors of classical music in the United States today. The past decade has seen a range of experimental performances that excitingly challenge stylistic and generic boundaries, and a widening spectrum of creators have been reaching to opera as a medium to center and (re)present stories of historically marginalized communities. Beyond introducing students to the richness of this new repertory, the seminar addresses the broad socio-political and economic currents underlying these recent changes in American opera, including institutional and funding structures; the role of PR, criticism, awards, and other taste-making agents; and cultural reckonings with systemic racism, engrained injustices, and white supremacy. A selection of recent operas or scenes – available as video recordings or audio files – allows us to explore aesthetic issues, such as narrative structures, diverse treatments of the (singing) voice, embodiment, interactivity, immersion, the role of digital media, mobility, site-specificity, and new online formats for opera. Students learn how to write about contemporary performances and works for which little scholarship is yet available; practice both public-facing and academic writing; recognize and critique contemporary canon-formation processes; and relate contemporary artistic practices to a larger institutional and economic ecosystem. At least one trip to the Metropolitan Opera is anticipated, for Anthony Davis and Thulani Davis' *X: The Life and Times of Malcolm X*. HU

* **MUSI 480a / AFAM 479a, Music of the Caribbean: Cuba and Jamaica** Michael Veal
An examination of the Afro-diasporic music cultures of Cuba and Jamaica, placing the historical succession of musical genres and traditions into social, cultural, and political contexts. Cuban genres studied include religious/folkloric traditions (Lucumi/Santeria and Abakua), rumba, son, mambo, pachanga/charanga, salsa, timba and reggaeton. Jamaican genres studied include: folkloric traditions (etu/tambu/kumina), Jamaican R&B, ska, rock steady, reggae, ragga/dancehall. Prominent themes include: slavery, Afro-diasporic cultural traditions, Black Atlantic culture, nationalism/independence/post-colonial culture, relationships with the United States, music & gender/sexuality, technology. HU

* **MUSI 494a / EALL 253a / THST 218a, Remapping Dance** Amanda Reid, Ameera Nimjee, and Rosa van Hensbergen

What does it mean to be at home in a body? What does it mean to move freely, and what kinds of bodies are granted that right? How is dance encoded as bodies move between various sites? In this team-taught class, we remap the field of dance through its migratory routes to understand how movement is shaped by the connections and frictions of ever-changing communities. As three dance scholars, bringing specialisms in West Indian dance, South Asian dance, and East Asian dance, we are looking to decenter the ways in which dance is taught, both in what we teach and in the ways we teach. Many of the dancers we follow create art inspired by migration, exile, and displacement (both within and beyond the nation) to write new histories of

political belonging. Others trace migratory routes through mediums, ideologies, and technologies. The course is structured around four units designed to invite the remapping of dance through its many spaces of creativity: The Archive, The Studio, The Field, and The Stage. Throughout, we explore how different ideas of virtuosity, risk, precarity, radicalism, community, and solidarity are shaped by space and place. We rethink how local dance economies are governed by world markets and neoliberal funding models and ask how individual bodies can intervene in these global systems.

No dance background is required, but students have the opportunity to take part in some accessible movement practice. HU

* **MUSI 495a, Individual Study** Nathaniel Adam

Original essay in ethnomusicology, music history, music theory, or music technology and/or multimedia art under the direction of a faculty adviser. Admission to the course upon submission to the department of the essay proposal by the registration deadline, and approval of the director of undergraduate studies.

* **MUSI 496a, The Senior Recital** Nathaniel Adam

Preparation and performance of a senior recital and accompanying essay under faculty supervision. Admission by permission of the director of undergraduate studies. Prerequisite: MUSI 461.

* **MUSI 497a, The Senior Project in Composition** Nathaniel Adam

Preparation of a senior composition project under faculty supervision. Admission by permission of the composition faculty of the Department of Music. Prerequisites: MUSI 320, 321, 420, and 421.

* **MUSI 498a, The Senior Project in Musical Theater Composition** Nathaniel Adam

Preparation of a senior composition project in the field of musical theater under faculty supervision. Admission by permission of the coordinator of the Shen Curriculum. Two terms of MUSI 314 or equivalent.

* **MUSI 499a, The Senior Essay** Nathaniel Adam

Preparation of a senior essay under faculty supervision. Admission by permission of the director of undergraduate studies.

Naval Science (NAVY)

NAVY 100a, Naval Science Laboratory Ryan Buck

Leadership and practical application skills from the Professional Core Competency objectives that are not covered in other Naval Science courses. Emphasis on professional training that is not of an academic nature. Includes both classroom instruction and physical training. Topics and special briefings as determined by Naval Science faculty and the Naval Service Training Command. Required for NROTC students each term. Receives no credit; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors. o Course cr

* **NAVY 111a, Introduction to Naval Science** Scott Ryan

An overview of the naval service for first-year Naval ROTC students and others interested in pursuing the NROTC program. Organization, missions, customs and traditions, leadership principles, ethics, duties of a junior officer, and career options in the U.S. Navy and Marine Corps. Discussion of shipboard organization and procedures,

safety, and damage control prepares students for summer training aboard naval vessels. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

*** NAVY 212a, Seapower and Maritime Affairs** Staff

This course is a study of the U.S. Navy and the influence of U.S. sea power on world history that incorporates both a historical and political science process to explore the major events, attitudes, personalities, and circumstances that have imbued the U.S. Navy with its proud history and rich tradition. This course introduces grand strategy, evaluating key components, and examples from ancient history and modern U.S. history. It deals with issues of national imperatives in peacetime, as well as war, varying maritime philosophies that were interpreted into naval strategies/doctrines, budgetary concerns which shaped force realities, and the pursuit of American diplomatic objectives. It concludes with a discussion of the Navy's strategic and structural changes post-Cold War, the evolution of its focus, mission, and strategy both in the post-September 11, 2001 world and post-Global War on Terrorism era.

NAVY 311a, Naval Engineering Ryan Buck

An overview of Naval engineering systems and a detailed study of the principles behind ship construction. Topics include ship design, hydrodynamic forces, stability, conventional and nuclear propulsion, electrical theory and systems, interior communications, damage control, hydraulics, and ship control. Basic concepts in the theory and design of steam, gas turbine, and diesel propulsion. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

NAVY 411a, Naval Operations and Seamanship Dale Pettenski

Study of relative motion, formation tactics, and ship employment. Introductions to Naval operations and operations analysis, ship behavior and characteristics in maneuvering, applied aspects of ship handling, afloat communications, Naval command and control, Naval warfare areas, and joint warfare. Analysis of case studies involving related moral, ethical, and leadership issues. Prerequisites: NAVY 111 and 112. For enrollment credit only; cannot be applied toward the 36-course-credit requirement for the Yale bachelor's degree. Grades earned in this course do not count toward GPA or eligibility for General Honors.

Near Eastern Languages and Civilizations (NELC)

*** NELC 002a, The Discovery of Egypt and Europe's Age of Enlightenment** Nadine Moeller

European interest in Egypt extends back to the 17th century and was fueled simultaneously by the idea of the mysterious Orient as well as the Enlightenment drive to explain through science and reason the birth and rise of human civilization. While Egyptian exploration can be traced to as early as the Renaissance, it was during the Age of Enlightenment that European states sent research expeditions to explore the intriguing monuments and edifices along the Nile. This course explores the intellectual, political, and socio-economic background of Europe's discovery of Egypt during the

Age of Enlightenment. We also investigate the early years of a new scientific discipline called Egyptology, and its influence on archaeology, another Enlightenment-born discipline aiming to explain humanity through scientific methods. The learning goals for students are (a) to practice analytic skills to 'excavate' the reasoning, pre-conceptions, and attitudes of the first explorers and scientists to travel to Egypt, and (b) to reflect, through written and classroom assignments, on the cultural and historical impact of 'Egyptomania' on fashion, art, and architecture, and the ensuing plunder of Egyptian cultural heritage to satisfy European demand. HU TR

*** NELC 007a / HUMS 021a, Six Pretty Good Heroes** Kathryn Slanski

Focusing on the figure of the hero through different eras, cultures, and media, this course provides first-year students with a reading-and writing-intensive introduction to studying the humanities at Yale. The course is anchored around six transcultural models of the hero that similarly transcend boundaries of time and place: the warrior, the sage, the political leader, the proponent of justice, the poet/singer, and the unsung. Our sources range widely across genres, media, periods, and geographies: from the ancient Near Eastern, *Epic of Gilgamesh* (1500 BCE) to the Southeast Asian *Ramayana*, to the Icelandic-Ukrainian climate activism film, *Woman at War* (2018). As part of the Six Pretty Good suite, we explore Yale's special collections and art galleries to broaden our perspectives on hierarchies of value and to sharpen our skills of observation and working with evidence. Six Pretty Good Heroes is a 1.5 credit course, devoting sustained attention students' academic writing and is an excellent foundation for the next seven semesters at Yale. Required Friday sessions are reserved for writing labs and visits to Yale collections, as well as one-on-one and small-group meetings with the writing instruction staff. WR, HU o Course cr

*** NELC 110a, Writing Egyptology: Reflecting on Life and Death in Ancient Egypt, Mesopotamia, and the Bible** Mike Tritsch

Focusing on literature from ancient Egypt, this seminar explores timeless questions of the meaning of life and what happens after we die. Egypt, with its rich traditions to achieve fulfillment in the afterlife, evidenced even today by pyramids, temples, and tombs, provides a rich context before considering the Cuneiform and Hebrew cultures of Mesopotamia and the Mesopotamia. Through the genre of "pessimistic literature," unique to these cultures, the seminar investigates views on life and death, contextualizing them through the historical record. In a world replete with natural disasters, war, violence, disease, and hunger, not to mention the very old existential threat of climate change, pessimistic literature from the ancient Near East ponders questions about the inevitability of human suffering, and whether there is, thereafter, a greater reward. WR, HU

NELC 111a / CLCV 219a / HIST 311a, Egypt of the Pharaohs Staff

Egypt was among the first centralized territorial states in the world, and, because Egyptian history offers us 4000 years of institutional development and change, the focus of this course is on the long-term development of the ancient Egyptian state, its institutions, and its culture. The course introduces students to the history and culture of ancient Egypt from the rise of the central state to the early Christian period. General historical trends, the relationship of Egyptian history to other contemporary ancient cultures, and the legacy of Egypt to the "West" are also considered. At the end of the course, students have an understanding of the material culture and the historical

development of ancient Egypt, and an appreciation for the relationship of the ancient sources to the construction of ancient Egyptian history. HU o Course cr

NELC 121b / HUMS 140b, The Hero in the Ancient Near East Kathryn Slanski
Exploration of the interaction of religion, history, and literature in the ancient Near East through study of its heroes, including comparison with heroes, heroic narratives, and hero cults in the Bible and from classical Greece. WR, HU o Course cr

NELC 125a, Ancient Mesopotamia: The First Half of History Eckart Frahm
An introduction to the history and culture of the peoples and societies of ancient Iraq, from 3500 BCE to 75 CE, with a focus on Sumer, Babylonia, and Assyria. Students explore the origins and development of core features of Mesopotamian civilization, many still with us, from writing, literature, law, science, and organized religion to urbanism, long-distance trade, and empire. Readings (in translation) include the *Epic of Gilgamesh*, the *Babylonian Epic of Creation*, liver omens from King Ashurbanipal's famous library, cuneiform letters and legal documents, as well as the world's earliest cookbooks, housed in the Yale Babylonian Collection. HU o Course cr

*** NELC 128a / HUMS 128a / LITR 200a, From Gilgamesh to Persepolis: Introduction to Near Eastern Literatures** Samuel Hodgkin

This course is an introduction to Near Eastern civilization through its rich and diverse literary cultures. We read and discuss ancient works, such as the *Epic of Gilgamesh*, *Genesis*, and "The Song of Songs," medieval works, such as *A Thousand and One Nights*, selections from the *Qur'an*, and *Shah-nama: The Book of Kings*, and modern works of Israeli, Turkish, and Iranian novelists and Palestinian poets. Students complement classroom studies with visits to the Yale Babylonian Collection and the Beinecke Rare Book and Manuscript Library, as well as with film screenings and guest speakers. Students also learn fundamentals of Near Eastern writing systems, and consider questions of tradition, transmission, and translation. All readings are in translation. Permission from the instructor required. WR, HU

NELC 131a / HUMS 138a / LITR 428a / MMES 138a / RLST 165a, The Quran Travis Zadeh

Introduction to the study of the Quran. Topics include: the literary, historical, and theological reception of the Quran; its collection and redaction; the scriptural milieu of late antiquity; education and religious authority; ritual performance and calligraphic expression; the diversity of Muslim exegesis. HU

*** NELC 157b / JDST 306b / MMES 157b, Israeli Narratives** Shiri Goren

This course looks at contemporary representations of social, political, and domestic space in Israel through cultural production such as literature, visual work, and art. It focuses on close reading of major Israeli works in translation with attention to how their themes and forms relate to the Israeli condition. Reading and viewing include: Amos Oz's major novel *A Tale of Love and Darkness*, *Anne Frank: The Graphic Diary*, Maya Arad's novella "The Hebrew Teacher," TV show *Arab Labor* and writing by Yehudah Amichai, Etgar Keret, and Sayed Kashua, among others. We discuss topics and theories of personal and collective identity formation, war and peace, ethnicity and race, migration, nationalism, and gender. No knowledge of Hebrew required. WR, HU

*** NELC 244a / ARCG 242a, Ancient Egyptian Materials and Techniques: Their Histories and Socio-Economic Implications** Gregory Marouard

This seminar investigates in detail ancient Egyptian materials, techniques, and industries through the scope of archaeology, history, and socioeconomical, textual as well as iconographic data. When possible ethnoarchaeological and experimental approaches of the antique *chaîne-opératoire* are discussed in order to illustrate skills and professions that have now completely disappeared. This class is organized according to various themes within a diachronical approach, from the 4th millennium BC to the Roman Period. Copper and precious metals, construction stones, hard stones and gems, glass and faience production, imported wood or ivory, we explore multiple categories of materials, where and how they were collected or exchanged, the way these products were transported, transformed, refined or assembled and the complex organization of the work involved and administration that was required in order to satisfy the tastes of Egyptian elites or their desires to worship their gods. Some other vernacular *savoir-faire* linked to the everyday life and the death is explored, through food production and mummification practices. The aim of this seminar is not only to give an overview of the history of techniques for this early civilization but, beyond how things were made, to acquire a more critical view of ancient Egyptian culture through the material culture and as well the strong economic and sociologic implications linked to their objects and constructions#rather than the usual focus on its temples and tombs. HU

*** NELC 320b / HIST 333b / RLST 420b, Introduction to Syriac Christianity** Maria Doerfler

This seminar aims to introduce students to the literary, historical, and theological tradition of Syriac Christianity and the developing field of Syriac Christian studies. In this vein, students encounter a number of the tradition's key authors; learn to locate its development in the context of different imperial cultures and religious interlocutors, including Judaism and Islam; and explore topics at the vanguard of current scholarship, including distinctive approaches to asceticism, ritual, and historiography. In addition to weekly meetings, the seminar further requires attendance for three special sessions: a visit to the Beinecke Rare Books & Manuscripts Library and its considerable Syriac manuscript holdings; a visit to the Yale University Art Gallery and its collection of relevant artefacts and coins; and an introduction to the use of digital humanities in Syriac Studies through the Yale Digital Dura-Europos Archive (YDEA). Permission of Instructor is required. HU

*** NELC 321b / ANTH 492b / ARCG 492b, Imaging Ancient Worlds in Museum Collections** Agnete Lassen and Klaus Wagensonner

What is Digitization of Cultural Heritage? What are its merits, challenges, and best practices? The course highlightst the documentation and interpretation of archaeological artifacts, in particular artifacts from Western Asia. The primary goal of the course is the use of new technologies in computer graphics, including 3D imaging, to support current research in archaeology and anthropology. The course does put particular emphasis on the best practices of digitizing artifacts in collections. The prime study subjects are the artifacts housed in the Yale Babylonian Collection (<https://babylonian-collection.yale.edu>). For some background information on the Collection see here. Students engage directly with the artifacts while practicing the various imaging techniques. HU o Course cr

* NELC 324a / ARCG 000 / ARCG 354a / EVST 354a, **The Ancient State: Genesis and Crisis from Mesopotamia to Mexico** Harvey Weiss

Ancient states were societies with surplus agricultural production, classes, specialization of labor, political hierarchies, monumental public architecture and, frequently, irrigation, cities, and writing. Pristine state societies, the earliest civilizations, arose independently from simple egalitarian hunting and gathering societies in six areas of the world. How and why these earliest states arose are among the great questions of post-Enlightenment social science. This course explains (1) why this is a problem, to this day, (2) the dynamic environmental forces that drove early state formation, and (3) the unresolved fundamental questions of ancient state genesis and crisis, –law-like regularities or a chance coincidence of heterogenous forces? Previously HIST 204J. HU, SO

* NELC 373a / ARCG 473a / EVST 473a, **Climate Change, Societal Collapse, and Resilience** Harvey Weiss

The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

NELC 405b / PERS 155b, **Middle Persian** Kevin van Bladel

This one-term course covers the grammar of Middle Persian, focusing on royal and private inscriptions and the Zoroastrian priestly book tradition. Permission of instructor is required.

* NELC 406a / PERS 156a, **Manichaean Middle Persian & Parthian** Kevin van Bladel

Introduction to reading Middle Persian and Parthian, two different but closely related ancient Iranian languages, in the distinctive script employed by Manichaean scribes. Includes extensive study of the Manichaean religion through original texts and secondary readings. Permission of instructor required.

* NELC 441a, **Introduction to Classical Persian** Jane Mikkelson

This course provides a concise and complete overview of classical Persian grammar. Designed for advanced undergraduates who intend to use classical Persian as a research language, and presuming no prior knowledge of Persian, the class borrows its method from a recent textbook by E.E. Armand and N. I#U. Chalisova in which classical Persian is taught from the very first unit through close engagement with premodern primary sources. The class also introduces students to major works of the classical Persian canon and acquaints them with key resources (reference grammars, dictionaries, encyclopedias, bibliographies) that allows them to read and engage with classical Persian texts in their own research.

* NELC 442b, **Classical Persian Prose** Jane Mikkelson

This course acquaints students with works of classical Persian prose drawn from a wide range of eras, geographies, and genres. We read selections from theory and philosophy (Ne#āmī #Arū#ī's *Four Discourses*, Ebn Sinā's *Book of Knowledge*), didactic literature (Sa#dī's *Golestān*, Rūmī's *Discourses*), history (Abū'l-Fa#l's *History of Akbar*), autobiography (Mīr Taqī Mīr's *Remembrances*), and examples of *enshā* (letters and state documents). An essential objective of the course is to introduce students to some of the ways in which the premodern Persian tradition thinks about itself. To that end, primary readings are supplemented with short extracts from works by

medieval and early modern theorists, critics, philosophers, and literary historians; these texts supply concepts and skills that are indispensable for reading, appreciating, and researching Persian literature. Achieving a fine-grained view of the tradition from within illuminates our discussions as we consider the highly flexible functions of premodern Persian prose. Our texts consistently blur hard divisions between history and propaganda; between ethics and aesthetics; between acts of imagination and acts of state. Ornate and rule-bound, yet with ample scope for experimentation and canniness and boldness of vision, Persian prose emerges as a complex, multiform tradition that is anything but prosaic. Prerequisite: Reading knowledge of Persian (at least 1 semester).

HU

* **NELC 492a and NELC 493b, The Senior Essay** Kathryn Slanski

Preparation of a research paper of at least thirty pages (sixty pages for a two-term essay) under the supervision of a departmental faculty member, in accordance with the following schedule: (1) by the end of the second week of classes of the fall term, students meet with advisers to discuss the topic, approach, sources, and bibliography of the essay. Note: students planning to write the essay in the second term (NELC 493) should also meet with their prospective advisers by this deadline; (2) by the end of the fourth week of classes a prospectus with outline, including an annotated bibliography of materials in one or more Near Eastern languages and of secondary sources, is signed by the adviser and submitted to the director of undergraduate studies. The prospectus should indicate the formal title, scope, and focus of the essay, as well as the proposed research method, including detailed indications of the nature and extent of materials in a Near Eastern language that will be used; (3) at the end of the tenth week of classes (end of February for yearlong essays), a rough draft of the complete essay is submitted to the adviser; (4) two copies of the finished paper must be submitted to the director of undergraduate studies, Rm 314 HGS, by 4 p.m. on the last day of reading period. Failure to comply with the deadline will be penalized by a lower grade. Senior essays will be graded by departmental faculty unless, for exceptional reasons, different arrangements for an outside reader are made in advance with the director of undergraduate studies and the departmental adviser.

Neuroscience (NSCI)

NSCI 160a / PSYC 160a, The Human Brain Robb Rutledge

Introduction to the neural bases of human psychological function, including social, cognitive, and affective processing. Preparation for more advanced courses in cognitive and social neuroscience. Topics include memory, reward processing, neuroeconomics, individual differences, emotion, social inferences, and clinical disorders. Neuroanatomy, neurophysiology, and neuropharmacology are also introduced. SC

* **NSCI 240a / PSYC 230a, Research Methods in Human Neuroscience** Gregory McCarthy

Primary focus on structural, functional, and diffusion magnetic resonance imaging, with a secondary emphasis upon brain stimulation, electroencephalography, and evoked potentials. Students learn the fundamentals of each method and the experimental designs for which they are most applicable. Prerequisites: PSYC 160/NSCI 160 and a course in statistics, or permission of instructor. SC

*** NSCI 260a / PSYC 260a, Research Methods in Psychopathology: Psychotic Disorders** Tyrone Cannon

Methods of research in psychopathology. Focus on longitudinal designs, high-risk sampling approaches, prediction of outcomes, and modeling change over time. Students design and perform analyses of clinical, cognitive, genetic, neuroimaging and other kinds of measures as predictors of psychosis and related outcomes, using existing datasets supplied by the instructor. so

*** NSCI 280a / S&DS 280a, Neural Data Analysis** Ethan Meyers

We discuss data analysis methods that are used in the neuroscience community. Methods include classical descriptive and inferential statistics, point process models, mutual information measures, machine learning (neural decoding) analyses, dimensionality reduction methods, and representational similarity analyses. Each week we read a research paper that uses one of these methods, and we replicate these analyses using the R or Python programming language. Emphasis is on analyzing neural spiking data, although we also discuss other imaging modalities such as magneto/electro-encephalography (EEG/MEG), two-photon imaging, and possibility functional magnetic resonance imaging data (fMRI). Data we analyze includes smaller datasets, such as single neuron recordings from songbird vocal motor system, as well as larger data sets, such as the Allen Brain observatory's simultaneous recordings from the mouse visual system. Prerequisite: S&DS 230. Background in neuroscience is recommended but not required (e.g., it would be useful to have taken at the level of NSCI 160).

NSCI 320a / MCDB 320a, Neurobiology Haig Keshishian and Paul Forscher
The excitability of the nerve cell membrane as a starting point for the study of molecular, cellular, and systems-level mechanisms underlying the generation and control of behavior. At least 1 semester of college chemistry is strongly recommended.
sc o Course cr

NSCI 321La / MCDB 321La, Laboratory for Neurobiology Haig Keshishian
Introduction to the neurosciences. Projects include the study of neuronal excitability, sensory transduction, CNS function, synaptic physiology, and neuroanatomy. Concurrently with or after MCDB 320. sc ½ Course cr

NSCI 324a / BENG 230a / MB&B 330a / MCDB 330a, Modeling Biological Systems I
Thierry Emonet

Biological systems make sophisticated decisions at many levels. This course explores the molecular and computational underpinnings of how these decisions are made, with a focus on modeling static and dynamic processes in example biological systems. This course is aimed at biology students and teaches the analytic and computational methods needed to model genetic networks and protein signaling pathways. Students present and discuss original papers in class. They learn to model using MatLab in a series of in-class hackathons that illustrate the biological examples discussed in the lectures. Biological systems and processes that are modeled include: (i) gene expression, including the kinetics of RNA and protein synthesis and degradation; (ii) activators and repressors; (iii) the lysogeny/lysis switch of lambda phage; (iv) network motifs and how they shape response dynamics; (v) cell signaling, MAP kinase networks and cell fate decisions; and (vi) noise in gene expression. Prerequisites: MATH 115 or 116. BIOL 101-104, or with permission of instructors. This course also benefits students

who have taken more advanced biology courses (e.g. MCDB 200, MCDB 310, MB&B 300/301). QR, SC o Course cr

NSCI 325b / BENG 465b / MB&B 361b / MCDB 361b, Modeling Biological Systems II

Joe Howard

Advanced topics related to dynamical processes in biological systems. Processes by which cells compute, count, tell time, oscillate, and generate spatial patterns. Time-dependent dynamics in regulatory, signal-transduction, and neuronal networks; fluctuations, growth, and form. Comparisons between models and experimental data. Dynamical models applied to neurons, neural systems, and cellular biophysical processes. Use of MATLAB to create models. Prerequisite: MCDB 330 or equivalent, or a 200-level biology course, or with permission of instructor. QR

NSCI 329a / MCDB 329a, Sensory Neuroscience Through Illusions Damon Clark and Michael O'Donnell

Animals use sensory systems to obtain and process information about the environment around them. Sensory illusions occur when our sensory systems provide us with surprising or unexpected percepts of the world. The goal of this course is to introduce students to sensory neuroscience at the levels of sensor physiology and of the neural circuits that process information from sensors. The course is centered around sensory illusions, which are special cases of sensory processing that can be especially illustrative, as well as delightful. These special cases are used to learn about the general principles that organize sensation across modalities and species. Prerequisites: BIOL 101-104; NSCI 160 or NSCI 320 or permission of instructor. SC

NSCI 355a / PSYC 303a, Social Neuroscience Stephanie Lazzaro

Exploration of the psychological and neural mechanisms that enable the formation, maintenance, and dissolution of social relationships. Topics include the neuroscience of how we form impressions and decide whether to instigate relationships with others; how we build relationships through trust, cooperation, attachment, conflict, and reconciliation; and group-level processes including intergroup bias, moral judgment, and decision making. Prerequisite: PSYC 110 or permission of instructor. SC

NSCI 361a / CGSC 274a / PSYC 261a, Algorithms of the Mind Ilker Yildirim

This course introduces computational theories of psychological processes, with a pedagogical focus on perception and high-level cognition. Each week students learn about new computational methods grounded in neurocognitive phenomena. Lectures introduce these topics conceptually; lab sections provide hands-on instruction with programming assignments and review of mathematical concepts. Lectures cover a range of computational methods sampling across the fields of computational statistics, artificial intelligence and machine learning, including probabilistic programming, neural networks, and differentiable programming. Students must have a programming background, ideally in a high-level programming language such as Python, Julia or Matlab. Students must also have college-level calculus. The course will substantially use Julia and Python. QR, SC, SO o Course cr

*** NSCI 449a / PSYC 449a, Neuroscience of Social Interaction** Steve Chang

This seminar covers influential studies that inform how the brain enables complex social interactions from the perspectives of neural mechanisms. Students thoroughly read selected original research papers in the field of social neuroscience across several animal species and multiple modern neuroscience methodologies. In class, the

instructor and students work together to discuss these studies in depth. Focused topics include neural mechanisms behind brain-to-brain coupling, empathy, prosocial decision-making, oxytocin effects, and social dysfunction. Prerequisite: PSYC 160 or permission from the instructor. SC

*** NSCI 470a and NSCI 471b, Independent Research** Damon Clark and Steve Chang
Research project under faculty supervision taken Pass/Fail; does not count toward the major, but does count toward graduation requirements. Students are expected to spend approximately ten hours per week in the laboratory. A final research report and/or presentation is required by end of term. Students who take this course more than once must reapply each term. To register, students must submit a form and written plan of study with bibliography, approved by the faculty research adviser and DUS, by the end of the first week of class. More detailed guidelines and forms can be obtained from <http://neuroscience.yale.edu>.

*** NSCI 480a and NSCI 481b, Senior Non-empirical Research** Damon Clark and Steve Chang
Research survey under faculty supervision fulfills the senior requirement for the B.A. degree and awards a letter grade. For NSCI seniors only (and second term juniors with DUS permission). Students are expected to conduct a literature review, to complete written assignments, and to present their research once in either the fall or spring term. Students are encouraged to pursue the same research project for two terms. The final research paper is due in the hands of the sponsoring faculty member, with a copy submitted to the department, by the stated deadline near the end of the term. To register, students submit a form and written plan of study with bibliography, approved by the faculty research adviser and DUS, by the end of the first week of classes. More detailed guidelines and forms can be obtained from <http://neuroscience.yale.edu>.

*** NSCI 490a and NSCI 491b, Senior Empirical Research** Damon Clark and Steve Chang
Laboratory or independent empirical research project under faculty supervision to fulfill the senior requirement for the B.S. degree. For NSCI seniors only (and second term juniors with DUS permission); this course awards a letter grade. Students are expected to spend at least ten hours per week in the laboratory, to complete written assignments, and to present their research once in either the fall or the spring term. Written assignments include a short research proposal summary due at the beginning of the term and a full research report due at the end of the term. Students are encouraged to pursue the same research project for two terms, in which case, the first term research report and the second term proposal summary may be combined into a full research proposal due at the end of the first term. Final papers are due by the stated deadline. Students should reserve a research laboratory during the term preceding the research. To register, students must submit a form and written plan of study with bibliography, approved by the faculty research adviser and DUS, by the end of the first week of classes. More detailed guidelines and forms can be obtained from <http://neuroscience.yale.edu>.

Ottoman (OTTM)

* **OTTM 230b, Reading and Research in Ottoman History and Literature** Ozgen Felek

This is a text reading course. The course aims to introduce students to a variety of historical and literary Ottoman texts and documents from the fourteenth to nineteenth centuries. We read and analyze excerpts from original Ottoman texts, such as the chronicles, heroic narratives, advice books, physiognomy texts, travel accounts, and hagiographical stories. The students participating in the course develop skills that enable them to read Ottoman Turkish texts and pursue independent work in Ottoman studies.

* **OTTM 231a / TKS 231a, Ottoman Paleography and Diplomatics** Ozgen Felek
The Ottoman Empire, which stretched from North Africa to the Balkans, developed a highly complicated bureaucratic system, bequeathing an enormous amount of documents mainly written in Turkish with Arabic script. This course is a survey of the historical documents of the Ottoman Empire from the fifteenth to the twentieth centuries. It aims to introduce students to the various types of Ottoman documents and diplomatics as well as their features and characteristics. By reading handwritten samples, the students develop skills that enable them to understand the morphology and functions of these documents, such as *emr-i #erif*, *berât*, *hatt-ı hümmâyün*, *telhîs*, *irâde-i #erif*, *mektub*, *kâ'ime*, *hulasa*, *arzuhâl*, *mahzar*, *mazbata*, *hüccet*, *i'lâm*, *fetvâ*, *vakfiye* and *tezkires*. This helps students pursue independent works in Ottoman studies.

Persian (PERS)

PERS 110a, Elementary Persian I Farkhondeh Shayesteh

Introduction to modern Persian, with emphasis on all four language skills: reading, writing, listening, and speaking. L1 1½ Course cr

PERS 120b, Elementary Persian II Farkhondeh Shayesteh

Continuation of PERS 110, with emphasis on all four language skills: reading, writing, listening, and speaking. Prerequisite: PERS 110 or permission of instructor. L2 RP 1½ Course cr

PERS 130b, Intermediate Persian I Farkhondeh Shayesteh

Continuation of PERS 120, with emphasis on expanding vocabulary and understanding more complex grammatical forms and syntax. Prerequisite: PERS 120 or permission of instructor. L3 RP 1½ Course cr

PERS 155b / NELC 405b, Middle Persian Kevin van Bladel

This one-term course covers the grammar of Middle Persian, focusing on royal and private inscriptions and the Zoroastrian priestly book tradition. Permission of instructor is required.

* **PERS 156a / NELC 406a, Manichaean Middle Persian & Parthian** Kevin van Bladel

Introduction to reading Middle Persian and Parthian, two different but closely related ancient Iranian languages, in the distinctive script employed by Manichaean scribes. Includes extensive study of the Manichaean religion through original texts and secondary readings. Permission of instructor required.

* **PERS 180a / MMES 179a, Reading Persian Texts** Farkhondeh Shayesteh

Students are presented with opportunities to enhance their knowledge of Persian, with primary focus on reading skills. The course involves reading, analyzing, and in-class discussion of assigned materials in the target language. Authentic reading excerpts from history, art, philosophy, and literature, as well as art history materials from medieval to modern times are used. This course is taught in Persian. Prerequisite: L4 and instructor permission. L5

Philosophy (PHIL)

* **PHIL 080a, Writing Philosophy: Human Beings and Nature—Topics in Metaphysics, Mind and Action** Paul Forrester

This course serves as an introduction to topics in metaphysics, philosophy of mind, and philosophy of action. The main question that ties these topics together is: how, if at all, do human beings stand apart from the rest of the natural order? We start by covering debates in metaphysics about the structure and persistence conditions of ordinary objects. We then cover the nature of personal identity. What makes you the same person you were ten years ago? We also study some foundational issues in philosophy of mind, like how, if at all, the mind differs from the body and how they interact with one another. Finally, we discuss the nature of free will and ask whether free choice is possible in a deterministic universe. This is a "writing in the disciplines" course, and students have the opportunity to study and engage with some of the best writing in philosophy, and learn how to write like a philosopher themselves. WR, HU

PHIL 113b / CGSC 186b / RLST 186b / SAST 270b, Fear, Suffering, Anger, Love: Buddhist Philosophy of Mind Sonam Kachru

This course introduces students to classical Indian Buddhist philosophy of mind and the reasons why Buddhists pursued it—"the reinvention of ourselves," or the pursuit of the transformation of persons from unhealthy to healthy ways of being minded. Class materials are drawn from categories and concerns found in theoretical and practical manuals from roughly the first to the fifth centuries C.E., but the topics are salient, including: What is the difference between mind and consciousness? Is there an unconscious? How does one model mental actions, such as attention or categorization? Are our minds structured by primal fear? Or anger? Do we ever have reason to be angry? What is cognitive control? Why do minds wander? Should mental dynamics be merely observed or attenuated or sculpted in some other way? What, if anything, is peace of mind? HU

PHIL 115a, First-Order Logic Staff

An introduction to formal logic. Study of the formal deductive systems and semantics for both propositional and predicate logic. Some discussion of metatheory. QR
o Course cr

PHIL 118a / RLST 127a / SAST 261a, Buddhist Thought: The Foundations Staff

This class introduces the fundamentals of Buddhist thought, focusing on the foundational doctrinal, philosophical, and ethical ideas that have animated the Buddhist tradition from its earliest days in India 2500 years ago down to the present, in places such as Tibet, China, and Japan. Though there will be occasional discussion of the social and practical contexts of the Buddhist religion, the primary focus of this course lies on how traditional Buddhist thinkers conceptualize the universe, think about the

nature of human beings, and propose that people should live their lives. Our main objects of inquiry are therefore the foundational Buddhist ideas, and the classic texts in which those ideas are put forth and defended, that are broadly speaking shared by all traditions of Buddhism. In the later part of the course, we take up some of these issues in the context of specific, regional forms of Buddhism, and watch some films that provide glimpses of Buddhist religious life on the ground. HU o Course cr

PHIL 125a / CLCV 125a, Introduction to Ancient Philosophy Staff

An introduction to ancient philosophy, beginning with the earliest pre-Socratics, concentrating on Plato and Aristotle, and including a brief foray into Hellenistic philosophy. Intended to be taken in conjunction with PHIL 126. WR, HU o Course cr

PHIL 126b, Introduction to Modern Philosophy from Descartes to Kant Keith

DeRose

An introduction to major figures in the history of modern philosophy, with critical reading of works by Descartes, Malabranche, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Intended to be taken in conjunction with PHIL 125, although PHIL 125 is not a prerequisite. HU o Course cr

PHIL 175b, Introduction to Ethics Shelly Kagan

What makes one act right and another wrong? What am I morally required to do for others? What is the basis of morality? These are some of the questions raised in moral philosophy. Examination of two of the most important answers, the theories of Mill and Kant, with brief consideration of the views of Hume and Hobbes. Discussion of the question: Why be moral? HU o Course cr

PHIL 177b / AFAM 198b / CGSC 277b / EDST 177b / EP&E 494b, Propaganda, Ideology, and Democracy Jason Stanley

Historical, philosophical, psychological, and linguistic introduction to the issues and challenges that propaganda raises for liberal democracy. How propaganda can work to undermine democracy; ways in which schools and the press are implicated; the use of propaganda by social movements to address democracy's deficiencies; the legitimacy of propaganda in cases of political crisis. HU o Course cr

PHIL 179a, Life Staff

Examination of elements that may contribute to a good life, including the question of which truly have value and why. Factors to consider in choosing a career; the significance of the decision whether to have children; the value of education; the importance of love and accomplishment. HU o Course cr

PHIL 180a / PLSC 191a, Ethics and International Affairs Thomas Pogge

Moral reflection taken beyond state boundaries. Traditional questions about state conduct and international relations as well as more recent questions about intergovernmental agencies, nongovernmental organizations, and the design of global institutional arrangements. HU

PHIL 182a / CGSC 282a / PSYC 182a, Perspectives on Human Nature Staff

Comparison of philosophical and psychological perspectives on human nature. Nietzsche on morality, paired with contemporary work on the psychology of moral judgment; Marx on religion, paired with systematic research on the science of religious belief; Schopenhauer paired with social psychology on happiness. HU o Course cr

*** PHIL 202a / RLST 277a, Existentialism** Noreen Khawaja

Introduction to key problems in European existentialism. Existentialism considered not as a unified movement, but as a tradition of interlocking ideas about human freedom woven through the philosophy, religious thought, art, and political theory of late modern Europe. Readings from Kierkegaard, Nietzsche, Heidegger, Fanon, Sartre, de Beauvoir, Césaire. HU

PHIL 204a / GMAN 381a, Kant's Critique of Pure Reason Eric Watkins

An examination of the metaphysical and epistemological doctrines of Kant's *Critique of Pure Reason*. Prerequisite: PHIL 126 or DRST 004. HU

PHIL 267a, Mathematical Logic Sun-Joo Shin

An introduction to the metatheory of first-order logic, up to and including the completeness theorem for the first-order calculus. Introduction to the basic concepts of set theory. Prerequisite: PHIL 115 or permission of instructor. QR

PHIL 269a, The Philosophy of Science Lily Hu

Central questions about the nature of scientific theory and practice. Factors that make a discipline a science; how and why scientific theories change over time; interpreting probabilistic claims in science; whether simpler theories are more likely to be true; the laws of nature; whether physics has a special status compared to other sciences; the legitimacy of adaptationist thinking in evolutionary biology. HU

PHIL 270a, Epistemology Keith DeRose

Introduction to current topics in the theory of knowledge. The analysis of knowledge, justified belief, rationality, certainty, and evidence. HU

PHIL 271a / LING 271a, Philosophy of Language Jason Stanley

An introduction to contemporary philosophy of language, organized around four broad topics: meaning, reference, context, and communication. Introduction to the use of logical notation. HU o Course cr

PHIL 276a / CGSC 276a, Metaphysics Staff

Examination of some fundamental aspects of reality. Topics include time, persistence, modality, causation, and existence. HU o Course cr

PHIL 290a / EVST 219a, Philosophical Environmental Ethics Staff

This is a philosophical introduction to environmental ethics. The course introduces students to the basic contours of the field and to a small number of special philosophical problems within the field. No philosophical background is required or expected. Readings are posted on Canvas and consist almost entirely of contemporary essays by philosophers and environmentalists. SO o Course cr

*** PHIL 312a, Aristotle's Philosophy of Mind and Action** David Charles

The main aim of the course is to understand and assess central aspects of Aristotle's psychological theory, in particular those concerned with perception, memory, and action. We also consider his discussion of the relation between psychological and physical states, processes, and properties. Knowledge of Greek is not required. HU

*** PHIL 315a, Truth and Relativism** Zoltan Szabo

Recent philosophical work on relativism and the relationship between truth and objectivity. The possibility of objective truth; rational disagreement; relativism and moral and scientific truth; bases for taking a stand on objectivity's limits. Prerequisite: At least one course in philosophy. HU

* **PHIL 328b, Nozick's Anarchy, State, and Utopia** Shelly Kagan

2024 marks the 50th anniversary of Robert Nozick's contemporary classic, *Anarchy, State, and Utopia* (ASU). ASU is a brilliant and challenging defense of libertarianism—the view in political philosophy that nothing more extensive than a minimal state is morally justified—and it is filled with original, witty, and thought-provoking arguments on a wide range of topics in moral and political philosophy (to list just a few: the nature of well-being, the basis of rights, the state of nature, animal ethics, property rights, free markets, distributive justice, the nature of coercion, self-defense, and what utopia might be like). The seminar is devoted to reading ASU in its entirety and evaluating its various arguments. Even those who reject Nozick's conclusions—maybe especially those who do so—can profit immensely from working through Nozick's views. Prerequisite: A previous class in moral philosophy or political philosophy. HU

PHIL 341a / EALL 308a, Sages of the Ancient World Mick Hunter

Comparative survey of ancient discourses about wisdom from China, India, the Near East, Egypt, Greece, and Rome. Topics include teaching, scheming, and dying. HU

* **PHIL 346a / GMAN 366a / HUMS 419a / LITR 393a, The Short Spring of German Theory**

Reconsideration of the intellectual microclimate of German academia 1945–1968. A German prelude to the internationalization effected by French theory, often in dialogue with German sources. Following Philipp Felsch's *The Summer of Theory* (English 2022): Theory as hybrid and successor to philosophy and sociology. Theory as the genre of the philosophy of history and grand narratives (e.g. "secularization"). Theory as the basis of academic interdisciplinarity and cultural-political practice. The canonization and aging of theoretical classics. Critical reflection on academia now and then. Legacies of the inter-War period and the Nazi past: M. Weber, Heidegger, Husserl, Benjamin, Kracauer, Adorno, Jaspers. New voices of the 1950s and 1960s: Arendt, Blumenberg, Gadamer, Habermas, Jauss, Koselleck, Szondi, Taubes. German reading and some prior familiarity with European intellectual history is helpful but not essential. HU

* **PHIL 353a, Practical Reasoning and Metaphysics** Michael Della Rocca

An examination of the metaphysical underpinnings of central concepts in the philosophy of practical reasoning. Among the concepts to be investigated are: action, reasons for action, irrational action, intention, the good, the right, virtue, direction of fit. Exploration of the near-universal dogma that theoretical reasoning and practical reasoning are distinct. Skepticism about the possibility of practical reasoning will be taken seriously. Authors to be discussed include: Anscombe, Korsgaard, Foot, Schapiro, Williams, Michael Smith, Bratman, Frankfurt, Davidson, and Thompson. Prerequisites: Two courses in philosophy. HU

* **PHIL 375a, Kant's Transcendental Dialectic** Eric Watkins

In the "Transcendental Dialectic", which forms the bulk of the second half of the *Critique of Pure Reason*, Kant presents a powerful and sustained critique of traditional metaphysics, one that calls into question claims concerning God, freedom, and the immortality of the soul, among other things. In this seminar, we attempt to understand Kant's conception of metaphysics, how he criticizes these metaphysical claims, and what contemporary significance these criticisms have for the practice of metaphysics today. Previous coursework in Philosophy required. HU

* **PHIL 395a / CGSC 395a, Junior Colloquium in Cognitive Science** Isaac Davis
Survey of contemporary issues and current research in cognitive science. By the end of the term, students select a research topic for the senior essay. Enrollment limited to Cognitive Science majors. ½ Course cr

* **PHIL 404a, The Philosophy of Leibniz** Michael Della Rocca
A close examination of Leibniz's vast, intricate, and still poorly understood philosophical system. Topics include substance, necessity, freedom, psychology, teleology, and the problem of evil. Attention to philosophical and theological antecedents (Spinoza, Descartes, Suarez, Aquinas, Aristotle) and to Leibniz's relevance to contemporary philosophy. HU

* **PHIL 421b, John Rawls** Thomas Pogge
This seminar offers a close study of Rawls's principal writings. It explores how his thinking evolved in communication with contemporary debates in philosophy, political science, law, and economics. And it probes the suitability of his mature conception of justice in regard to the role Rawls intended this conception to play in the 21st century United States. Featuring ample feedback on written and oral work, this seminar is meant to prepare students for future graduate work at a top institution. Prerequisites: Two courses with substantial normative content. HU

* **PHIL 426b / CGSC 426b / EP&E 490b / PSYC 422b, The Cognitive Science of Morality** Joshua Knobe
Introduction to the emerging field of moral cognition. Focus on questions about the philosophical significance of psychological findings. Topics include the role of emotion in moral judgment; the significance of character traits in virtue ethics and personality psychology; the reliability of intuitions and the psychological processes that underlie them. HU

* **PHIL 427b, Computability and Logic** Sun-Joo Shin
A technical exposition of Gödel's first and second incompleteness theorems and of some of their consequences in proof theory and model theory, such as Löb's theorem, Tarski's undefinability of truth, provability logic, and nonstandard models of arithmetic. Prerequisite: PHIL 267 or permission of instructor. QR, HU

* **PHIL 429b / RLST 430b / SAST 470b, Indian Philosophy in Sanskrit Literature**
Aleksandar Uskokov
In this course we focus on issues of philosophical significance in Sanskrit literature of "non-standard" philosophical genres, i.e., other than the treatise and the commentary. Specifically we read from canonical Hindu texts such as the Upanishads, Mahābhārata, Rāmāyaṇa, Bhāgavata Purāṇa, Bhagavad-gītā, and Yogavāsishtha; the classical genres of drama and praise poetry; and hagiographical literature, all in English translation. Attention is paid not only to substance but also form. The selection of philosophical problems includes philosophy of mind and personal identity; allegory; the ethics of non-violence; philosophy, politics, and religious pluralism; the highest good; theodicy; philosophical debate; etc. HU

* **PHIL 437a, Philosophy of Mathematics** Sun-Joo Shin
We take up a time-honored debate between Platonism and anti-Platonism, along with different views of mathematical truth, that is, logicism, formalism, and intuitionism. Students read classical papers on the subject. Why do we need the philosophy of

mathematics? This question could be answered toward the end of the semester, hopefully.

none HU

* **PHIL 442b, Language and Power** Jason Stanley

Investigation into the way language shapes our social world, drawing on readings from feminist theory, critical race theory, formal semantics and pragmatics, political psychology, and European history. Prerequisite: one philosophy course; a basic course in logic would be helpful. HU

* **PHIL 450b / EP&E 478b, The Problem of Evil** Keith DeRose

The challenge that evil's existence in the world poses for belief in a perfectly good and omnipotent God. The main formulations of the problem of evil; proposed ways of solving or mitigating the problem and criticism of those solutions. Skeptical theism, the free-will defense, soul-making theodicies, and doctrines of hell. HU

* **PHIL 455a / EP&E 334a, Normative Ethics** Shelly Kagan

A systematic examination of normative ethics, the part of moral philosophy that attempts to articulate and defend the basic principles of morality. The course surveys and explores some of the main normative factors relevant in determining the moral status of a given act or policy (features that help make a given act right or wrong). Brief consideration of some of the main views about the foundations of normative ethics (the ultimate basis or ground for the various moral principles). Prerequisite: a course in moral philosophy. HU

* **PHIL 457b / EP&E 235b / PLSC 283b, Recent Work on Justice** Thomas Pogge

In-depth study of one contemporary book, author, or debate in political philosophy, political theory, or normative economics. Focus varies from year to year based on student interest and may include a ground-breaking new book, the life's work of a prominent author, or an important theme in contemporary political thought. HU

* **PHIL 464a / PLSC 291a, Justice, Taxes, and Global Financial Integrity** Thomas Pogge

Study of the formulation, interpretation, and enforcement of national and international tax rules from the perspective of national and global economic justice. Previous courses in one or two of the following: law, economics, political science, or political philosophy. HU

* **PHIL 469a / GMAN 288a / HUMS 480a / LITR 482a, The Mortality of the Soul: From Aristotle to Heidegger** Martin Hagglund

This course explores fundamental philosophical questions of the relation between matter and form, life and spirit, necessity and freedom, by proceeding from Aristotle's analysis of the soul in *De Anima* and his notion of practical agency in the *Nicomachean Ethics*. We study Aristotle in conjunction with seminal works by contemporary neo-Aristotelian philosophers (Korsgaard, Nussbaum, Brague, and McDowell). We in turn pursue the implications of Aristotle's notion of life by engaging with contemporary philosophical discussions of death that take their point of departure in Epicurus (Nagel, Williams, Scheffler). We conclude by analyzing Heidegger's notion of constitutive mortality, in order to make explicit what is implicit in the form of the soul in Aristotle.

HU

* **PHIL 477a, Feminist Philosophy** Robin Dembroff

This course surveys several feminist frameworks for thinking about sex, gender, and sexual orientation. We consider questions such as: Is there a tenable distinction between sex and gender? Between gender and sexual orientation? What does it mean to say that gender is a social construction, or that sexual orientation is innate? What is the place of politics in gender and sexual identities? How do these identities—and especially resistant or transgressive identities—impact the creation and revision of social categories? HU

* **PHIL 480a, Tutorial** Daniel Greco

A reading course supervised by a member of the department and satisfying the following conditions: (1) the work of the course must not be possible in an already existing course; (2) the course must involve a substantial amount of writing, i.e., a term essay or a series of short essays; (3) the student must meet with the instructor regularly, normally for at least an hour a week; (4) the proposed course of study must be approved by both the director of undergraduate studies and the instructor.

* **PHIL 484a, Teleology and Mechanism** Paul Franks

Examination of teleology, with special emphasis on Aristotle, Kant, Schelling, and Hegel, as well as recent discussions of invisible hand explanations, which explain the appearance of purposiveness. Additional exploration of conceptions of mechanism, both in the history of modern philosophy and science, and in recent debates about so-called new mechanical philosophy. HU

* **PHIL 489b / PLSC 296b, Political Philosophy in a Time of Crisis: Strauss, Berlin, Oakeshott, and Aron** Steven Smith

This course examines four giants of twentieth-century political philosophy—Leo Strauss, Isaiah Berlin, Michael Oakeshott, and Raymond Aron—who all wrote under the shadow of totalitarianism. The themes of the course include (but are not limited to) the sources of contemporary anti-liberalism, the revival of political philosophy in an age of positivism, the case for value pluralism, and the role of liberal education in a free society. One of the following are recommended, but not required: Directed Studies, Introduction to Political Philosophy, courses in relevant areas in history or philosophy. HU, SO

* **PHIL 490a, The Senior Essay** Daniel Greco

The essay, written under the supervision of a member of the department, should be a substantial paper; a suggested length is between 8,000 and 12,000 words for one-term projects, and between 12,500 and 15,000 words for two-term projects. Students completing a one-term project should enroll in either 490 in the fall or 491 in the spring. Students completing a two-term project should enroll in both 490 and 491. The deadline for senior essays completed in the fall is December 5; the deadline for both one- and two-term senior essays completed in the spring is April 21.

* **PHIL 493a / HUMS 397a / RLST 428a, Neighbors and Others** Nancy Levene

This course is an interdisciplinary investigation of concepts and stories of family, community, borders, ethics, love, and antagonism. Otherwise put, it concerns the struggles of life with others – the logic, art, and psychology of those struggles. The starting point is a complex of ideas at the center of religions, which are given to differentiating "us" from "them" while also identifying values such as the love of the neighbor that are to override all differences. But religion is only one avenue into the

motif of the neighbor, a fraught term of both proximity and distance, a contested term and practice trailing in its wake lovers, enemies, kin, gods, and strangers. Who is my neighbor? What is this to ask and what does the question ask of us? Course material includes philosophy, literature, psychology, and film. WR, HU

Physics (PHYS)

* **PHYS 040a / ASTR 040a, Expanding Ideas of Time and Space** Meg Urry

Discussions on astronomy, and the nature of time and space. Topics include the shape and contents of the universe, special and general relativity, dark and light matter, and dark energy. Observations and ideas fundamental to astronomers' current model of an expanding and accelerating four-dimensional universe. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

* **PHYS 050a or b / APHY 050a or b / ENAS 050a or b, Science of Modern Technology and Public Policy** Daniel Prober

Examination of the science behind selected advances in modern technology and implications for public policy, with focus on the scientific and contextual basis of each advance. Topics are developed by the participants with the instructor and with guest lecturers, and may include nanotechnology, quantum computation and cryptography, renewable energy technologies, optical systems for communication and medical diagnostics, transistors, satellite imaging and global positioning systems, large-scale immunization, and DNA made to order. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

* **PHYS 099b / MB&B 099b / MCDB 099b / MENG 099b / SCIE 099b, Introduction to Research Methods in Physics and Biology: Preparing for a First Research Experience** Simon Mochrie

Spanning both the classroom and laboratory, this seminar course provides an immersive introduction to scientific research. Students build practical laboratory skills, computational competency, and begin to build fluency in the structures and modes of communication that define modern research. The course also facilitates identification of a laboratory mentor and devising a research proposal (with mentorship) for competitive summer research fellowship applications. This class is open to first-year students, interested in any STEM major, who have no prior research experience. This course does not count toward major requirements. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

* **PHYS 100b / APHY 100b / ENAS 100b / EPS 105b / EVST 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC

* **PHYS 107b / EDST 107b / MB&B 107b, Being Human in STEM** Rona Ramos

A collaboratively-designed, project-oriented course that seeks to examine, understand, and disseminate how diversity of gender, race, religion, sexuality, economic circumstances, etc. shape the STEM experience at Yale and nationally, and that seeks to formulate and implement solutions to issues that are identified. Study of relevant peer-reviewed literature and popular-press articles. Implementation of a questionnaire and interviews of STEM participants at Yale. Creation of role-play scenarios for provoking

discussions and raising awareness. Design and implementation of group interventions.
SO

* **PHYS 120b, Quantum Physics and Beyond** Helen Caines

Current topics in modern physics, beginning with quantum physics and continuing through subatomic physics, special and general relativity, cosmology, astrophysics, and string theory. SC

* **PHYS 121La or b / MB&B 121La or b, Introduction to Physics in Living Systems I: Observation and Analysis** Staff

A hands-on introduction to the physics that enables life and human measurement of living things. This lab builds student knowledge of scientific experimental design and practice. Topics include detection of light, basic circuit building, sterile technique in biology and physics, data collection with student-built instrumentation, and quantitative assessment. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 124L. Priority is given to first-year students looking to fulfill medical school application requirements and students seeking to join research labs at Yale. SC
½ Course cr

* **PHYS 124La or b / MB&B 124La or b, Introduction to Physics in Living Systems Laboratory IV: Electricity, Magnetism, and Radiation** Staff

Introduction to the physics that enables life and human measurement of living things. This lab introduces principles of electricity, magnetism, light and optics at work in the biological sciences. The syllabus emphasizes electric dipoles as a model for biomolecules, electric fields such as those across cell membranes, electric current, and magnetic fields. Light is developed in terms of electromagnetic radiation, ray optics and photons. The interaction of light with biomolecules to understand basic biological research and medical diagnostics are also covered. For students choosing to major in MB&B, this course may be used to fulfill the MB&B requirement for *Practical Skills* in physics. There are no prerequisites to this ½ credit class and it is helpful to take it in the same semester as MB&B 121L. May not be taken after PHYS 166L. Priority is given to first-year students looking to fulfill medical school application requirements and students seeking to join research labs at Yale. SC o Course cr

PHYS 151a or b / APHY 151a or b / ENAS 151a or b, Multivariable Calculus for Engineers Staff

An introduction to multivariable calculus focusing on applications to engineering problems. Topics include vector-valued functions, vector analysis, partial differentiation, multiple integrals, vector calculus, and the theorems of Green, Stokes, and Gauss. Prerequisite: MATH 115 or equivalent. QR

PHYS 165La and PHYS 166Lb, General Physics Laboratory Staff

A variety of individually self-contained experiments are roughly coordinated with the lectures in PHYS 170, 171, and 180, 181 and illustrate and develop physical principles covered in those lectures. SC o Course cr per term

* **PHYS 170a and PHYS 171b, University Physics for the Life Sciences** Sarah Demers

An introduction to classical physics with special emphasis on applications drawn from the life sciences and medicine. Fall-term topics include vectors and kinematics, Newton's laws, momentum, energy, random walks, diffusion, fluid mechanics,

mathematical modeling, and statistical mechanics. Spring-term topics include oscillations, waves, sound, electrostatics, circuits, Maxwell's equations, electromagnetic waves, gene circuits, and quantum mechanics. Essential mathematics are introduced and explained as needed. Completion of MATH 112 or equivalent is prerequisite for PHYS 170. Completion of PHYS 170 is a prerequisite for PHYS 171. MATH 116 (or MATH 115) is recommended prior to or concurrently with PHYS 171. QR, SC
o Course cr per term

PHYS 180a and PHYS 181b, University Physics Adriane Steinacker

A broad introduction to classical and modern physics for students who have some previous preparation in physics and mathematics. Fall-term topics include Newtonian mechanics, gravitation, waves, and thermodynamics. Spring-term topics include electromagnetism, special relativity, and quantum physics. Concurrently with MATH 115 and 120 or equivalents. See comparison of introductory sequences and laboratories in the YCPS. May not be taken for credit after PHYS 170, 171. QR, SC

PHYS 200a and PHYS 201b, Fundamentals of Physics Paul L. Tipton

A thorough introduction to the principles and methods of physics for students who have good preparation in physics and mathematics. Emphasis on problem solving and quantitative reasoning. Fall-term topics include Newtonian mechanics, special relativity, gravitation, thermodynamics, and waves. Spring-term topics include electromagnetism, geometrical and physical optics, and elements of quantum mechanics. Prerequisite: MATH 115 or equivalent. MATH 210 and either MATH 225 or MATH 222, are generally taken concurrently. See comparison of introductory sequences and laboratories in the YCPS. QR, SC

PHYS 205a or b and PHYS 206a or b, Modern Physical Measurement Staff

A two-term sequence of experiments in classical and modern physics for students who plan to major in Physics. In the first term, the basic principles of mechanics, electricity, and magnetism are illustrated in experiments designed to make use of computer data handling and teach error analysis. In the second term, students plan and carry out experiments illustrating aspects of wave and quantum phenomena and of atomic, solid state, and nuclear physics using modern instrumentation. May be begun in either term. SC
o Course cr per term

*** PHYS 260a and PHYS 261b, Intensive Introductory Physics** Jack Harris

An introduction to major branches of physics—classical and relativistic mechanics; gravitation; electricity and magnetism; and quantum physics, information, and computation—at a sophisticated level. For students majoring in the physical sciences, mathematics, and philosophy whose high school training included both mechanics and electricity and magnetism at the typical college/AP level and have excellent training in, and a flair for, mathematical methods and quantitative analysis. Concurrently with MATH 120, ENAS 151, PHYS 151, or PHYS 301, or equivalent. Students considering an alternative MATH course should check with the DUS in Physics. QR, SC

PHYS 293a / APHY 293a, Einstein and the Birth of Modern Physics A Douglas Stone

The first twenty-five years of the 20th century represent a turning point in human civilization as for the first time mankind achieved a systematic and predictive understanding of the atomic level constituents of matter and energy, and the mathematical laws which describe the interaction of these constituents. In addition, the General Theory of Relativity opened up for the first time a quantitative study of

cosmology, of the history of the universe as a whole. Albert Einstein was at the center of these breakthroughs, and also became an iconic figure beyond physics, representing scientist genius engaged in pure research into the fundamental laws of nature. This course addresses the nature of the transition to modern physics, underpinned by quantum and relativity theory, through study of Einstein's science, biography, and historical context. It also presents the basic concepts in electromagnetic theory, thermodynamics and statistical mechanics, special theory of relativity, and quantum mechanics which were central to this revolutionary epoch in science. Prerequisites: Two terms of PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261, or one term of any of these course with permission of instructor. QR, SC

PHYS 295a / ASTR 255a, Research Methods in Astrophysics Staff

An introduction to research methods in astronomy and astrophysics. The acquisition and analysis of astrophysical data, including the design and use of ground- and space-based telescopes, computational manipulation of digitized images and spectra, and confrontation of data with theoretical models. Examples taken from current research at Yale and elsewhere. Use of the Python programming language. Prerequisite: background in high school calculus and physics. No previous programming experience required. QR, SC RP

* **PHYS 296b, The Impact of the Atom** Steve Lamoreaux

Born in secrecy, the power of the atom was revealed to the world over Hiroshima in 1945. Since then, the atom has touched every facet of our lives. This seminar explores issues on how the atom has impacted the world using a multidisciplinary approach. These topics may include the impact of the atom on history, infrastructure, budget, arts and culture, peace and activism, healthcare, energy and climate change, policy, national security, international relations, science, and the future. Weekly assignments are supplemented with movie screenings and guest speakers. Prerequisites: One term of PHYS 170, 171, or PHYS 180, 181, or PHYS 200, 201, or PHYS 260, 261, or permission of instructor. SO

PHYS 301a, Introduction to Mathematical Methods of Physics Simon Mochrie

Topics include multivariable calculus, linear algebra, complex variables, vector calculus, and differential equations. Designed to give accelerated access to 400-level courses by providing, in one term, the essential background in mathematical methods. Recommended to be taken concurrently with PHYS 401 or 410. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. QR

PHYS 342a / EPS 342a, Introduction to Earth and Environmental Physics John Wettlaufer

A broad introduction to the processes that affect the past, present, and future features of the Earth. Examples include climate and climate change and anthropogenic activities underlying them, planetary history, and their relation to our understanding of Earth's present dynamics and thermodynamics. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. Recommended preparation: familiarity with basic calculus and differential equations. QR, SC

PHYS 343b / ASTR 343b, Gravity, Astrophysics, and Cosmology Daisuke Nagai

Introduction to frontier areas of research in astrophysics and cosmology exploring ideas and methods. In-depth discussion of the physics underlying several recent discoveries including extrasolar planets – their discovery, properties, and issues of habitability;

black holes—prediction of their properties from GR, observational signatures, and detection; and the accelerating universe—introduction to cosmological models and the discovery of dark energy. Prerequisites: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. QR, SC

PHYS 344b, Quantum and Nanoscale Physics Charles Brown

An introduction to cutting-edge developments in physics involving quantum information and/or nanotechnology. Background concepts in quantum mechanics, electromagnetism, and optics are introduced as necessary. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261, or permission of instructor. PHYS 301 or other advanced mathematics course recommended. QR, SC

PHYS 345b, Introduction to Quantum Information Processing and Communication

Steven Girvin

This course is intended for undergraduate physics, chemistry, engineering, computer science, statistics and data science, and mathematics majors seeking an introduction to quantum information science. There is now a second quantum revolution underway and a world-wide race to build powerful new types of computers based on quantum principles, and to develop new techniques for encrypted communication whose security is guaranteed by the laws of quantum mechanics. The approach of this course to these topics will strip away much of the traditional physics details to focus on the information content of quantum systems, the nature of measurement, and why the true randomness of certain measurement results can be a feature rather than a bug. We learn what it means for a quantum bit ('qubit') to be simultaneously 0 and 1 (in some sense). We learn about quantum entanglement and the associated 'spooky action at a distance' that convinced Einstein that the quantum theory must be wrong. Ironically, this bizarre effect is now used on a daily basis to prove that quantum mechanics is indeed correct and used as a routine engineering test to make sure that quantum computers are working properly and are truly quantum. Specific topics include: the mathematical representation of quantum states as complex vectors, the superposition principle, entanglement and Bell inequalities, quantum gates and algorithms for quantum computers, quantum error correction, dense coding, teleportation, and secure quantum communication. Students learn to do problem sets based on programming and operating publicly-accessible cloud-based quantum computers. See for example: <https://www.ibm.com/quantum-computing/>. Familiarity with complex numbers and the basics of linear algebra (matrices, determinants, eigenvectors and eigenvalues) is assumed. Prior exposure to basic probability and statistics. as well as a course in quantum mechanics are useful but not required. SC

PHYS 353a / BENG 353a, Introduction to Biomechanics Michael Murrell

An introduction to the biomechanics used in biosolid mechanics, biofluid mechanics, biothermomechanics, and biochemomechanics. Diverse aspects of biomedical engineering, from basic mechanobiology to the design of novel biomaterials, medical devices, and surgical interventions. Prerequisites: PHYS 180, 181, MATH 115, and ENAS 194. QR o Course cr

*** PHYS 378a, Introduction to Scientific Computing & Data Science** Daisuke Nagai

This course introduces students to essential computational and data analysis methods and tools and their problem-solving applications. These are skills and knowledge essential for beginning research in the sciences, and are not typically taught in an introductory physics curriculum. The goal here is not completeness across any of these

areas, but instead the introduction of the most important and useful skills, concepts, methods, techniques, tools and relevant knowledge for getting started in research in physics. Key learning goals include basic programming in Python, data analysis, modeling, simulations and machine learning, and their applications to problems in physics and beyond. Prerequisites: Introductory physics and familiarity with single variable calculus (basic integration, differentiation, Taylor series, etc). Previous experience in Python programming is not required. Contact instructor if you are unsure about your preparation. SC

*** PHYS 382Lb, Advanced Physics Laboratory** Laura Newburgh and Sidney Cahn
Laboratory experiments with some discussion of theory and techniques. An advanced course focusing on modern experimental methods and concepts in atomic, optical, nuclear, and condensed matter physics. Intended to prepare students for independent research. For majors in the physical sciences. After or concurrently with PHYS 439 or 440, or with permission of instructor. PHYS 206L WR, SC

PHYS 401a and PHYS 402b, Advanced Classical Physics from Newton to Einstein
Staff

Advanced physics as the field developed from the time of Newton to the age of Einstein. Topics include mechanics, electricity and magnetism, statistical physics, and thermodynamics. The development of classical physics into a "mature" scientific discipline, an idea that was subsequently shaken to the core by the revolutionary discoveries of quantum physics and relativity. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261. Concurrently with PHYS 301 or other advanced mathematics course. QR, SC

PHYS 410a, Classical Mechanics David Poland

An advanced treatment of mechanics, with a focus on the methods of Lagrange and Hamilton. Lectures and problems address the mechanics of particles, systems of particles, and rigid bodies, as well as free and forced oscillations. Introduction to chaos and special relativity. Prerequisite: PHYS 170, 171, or 180, 181, or 200, 201, or 260, 261. Concurrently with PHYS 301 or other advanced mathematics course. QR, SC

PHYS 412a, Relativity Witold Skiba

This course covers special relativity and an introduction to general relativity. A thorough treatment of special relativity, stressing equally conceptual understanding and certain formal aspects. Introduction to general relativity covers curved spaces, Einstein's equations, and some of their solutions. Prerequisite: PHYS 401 or PHYS 410. QR, SC

*** PHYS 420a / APHY 420a, Thermodynamics and Statistical Mechanics** Nicholas
Read

This course is subdivided into two topics. We study thermodynamics from a purely macroscopic point of view and then we devote time to the study of statistical mechanics, the microscopic foundation of thermodynamics. Prerequisites: PHYS 301, 410, and 440 or permission of instructor. QR, SC

PHYS 430b, Electromagnetic Fields and Optics Witold Skiba

Electrostatics, magnetic fields of steady currents, electromagnetic waves, and relativistic dynamics. Provides a working knowledge of electrodynamics. Prerequisites: PHYS 301 and 410 or equivalents. QR, SC

PHYS 439a / APHY 439a, Basic Quantum Mechanics Robert Schoelkopf

The basic concepts and techniques of quantum mechanics essential for solid-state physics and quantum electronics. Topics include the Schrödinger treatment of the harmonic oscillator, atoms and molecules and tunneling, matrix methods, and perturbation theory. Prerequisites: PHYS 181 or 201, PHYS 301, or equivalents, or permission of instructor. QR, SC

PHYS 440a, Quantum Mechanics and Natural Phenomena I Ramamurti Shankar

The first term of a two-term sequence covering principles of quantum mechanics with examples of applications to atomic physics. The solution of bound-state eigenvalue problems, free scattering states, barrier penetration, the hydrogen-atom problem, perturbation theory, transition amplitudes, scattering, and approximation techniques. Prerequisite: PHYS 410 or 401. QR, SC

PHYS 441b, Quantum Mechanics and Natural Phenomena II Ramamurti Shankar

Continuation of PHYS 440. Prerequisite: PHYS 440 and either PHYS 430 or permission of the instructor. QR, SC

PHYS 442b, Introduction to Nuclear and Elementary Particle Physics David Poland

Fundamental concepts in nuclear and particle physics, including the discovery of radioactivity, the Dirac equation, antimatter, Feynman diagrams, hadron resonances, quarks and gluons, fundamental symmetries, the weak interaction, beta decay, quantum chromodynamics, neutrino oscillation, unification, and particle theories for dark matter. Prerequisite: two term courses in quantum mechanics. QR, SC

PHYS 448a / APHY 448a, Solid State Physics I Yu He

The first term of a two-term sequence covering the principles underlying the electrical, thermal, magnetic, and optical properties of solids, including crystal structure, phonons, energy bands, semiconductors, Fermi surfaces, magnetic resonances, phase transitions, dielectrics, magnetic materials, and superconductors. Prerequisites: APHY 322, 439, PHYS 420. QR, SC

PHYS 449b / APHY 449b, Solid State Physics II Sohrab Ismail-Beigi

The second term of the sequence described under APHY 448. QR, SC

PHYS 458a / APHY 458a, Principles of Optics with Applications Hui Cao

Introduction to the principles of optics and electromagnetic wave phenomena with applications to microscopy, optical fibers, laser spectroscopy, and nanostructure physics. Topics include propagation of light, reflection and refraction, guiding light, polarization, interference, diffraction, scattering, Fourier optics, and optical coherence. Prerequisite: PHYS 430. QR, SC

PHYS 460a, Mathematical Methods of Physics Keith Baker

Survey of mathematical techniques useful in physics. Physical examples illustrate vector and tensor analysis, group theory, complex analysis (residue calculus, method of steepest descent), differential equations and Green's functions, and selected advanced topics. Prerequisite: PHYS 301 or other advanced mathematics course. QR

*** PHYS 469a and PHYS 470b, Independent Research in Physics** Staff

Each student works on an independent project under the supervision of a member of the faculty or research staff. Students participate in a series of seminar meetings in which they present a talk on their project or research related to it. A written report is also required. For students with a strong background in physics coursework. This

course may be taken multiple times for pass/fail credit. Suggested for first years and sophomores.

*** PHYS 471a and PHYS 472b, Independent Projects in Physics** Staff

Each student works on an independent project under the supervision of a member of the faculty or research staff. Students participate in a series of seminar meetings in which they present a talk on their project or research related to it. A written report is also required. Registration is limited to junior and senior physics majors. This course may be taken up to four times for a letter grade.

Polish (PLSH)

PLSH 110a, Elementary Polish I Krystyna Illakowicz

A comprehensive introduction to elementary Polish grammar and conversation, with emphasis on spontaneous oral expression. Reading of original texts, including poetry. Use of video materials. L1 RP 1½ Course cr

PLSH 120b, Elementary Polish II Krystyna Illakowicz

Continuation of PLSH 110. After PLSH 110 or equivalent. L2 RP 1½ Course cr

PLSH 130a, Intermediate Polish I Krystyna Illakowicz

A reading and conversation course conducted in Polish. Systematic review of grammar; practice in speaking and composition; reading of selected texts, including poetry. Use of video materials. After PLSH 120 or equivalent. L3 RP 1½ Course cr

PLSH 140b, Intermediate Polish II Krystyna Illakowicz

Continuation of PLSH 130. After PLSH 130 or equivalent. L4 RP 1½ Course cr

*** PLSH 150a, Advanced Polish** Krystyna Illakowicz

Improvement of high-level language skills through reading, comprehension, discussion, and writing. Focus on the study of language through major literary and cultural texts, as well as through film and other media. Exploration of major historical and cultural themes. Prerequisite: PLSH 140 or equivalent. L5

*** PLSH 248b / THST 370b, Polish Theater and Its Traditions** Krystyna Illakowicz

Exploration of the rebellious, defiant, and explosive nature of Polish theater, including ways in which theater has challenged, ridiculed, dissected, and disabled oppressive political power. Polish experimental and absurdist traditions that resulted from a merger of the artistic and the political; environmental and community traditions of the Reduta Theatre; Polish-American theater connections. Includes attendance at live theater events as well as meetings with Polish theater groups and actors. HU TR

Political Science (PLSC)

PLSC S220b / PLSC 220b / WGSS 220b, Gender and Politics Andrea Aldrich

Course cancelled. In-person Course. Exploration of theoretical and empirical work in political science to study the relationship between gender and politics in the United States and around the world. Topics include women's representative in legislative and executive branch politics in democratic regimes; the impact of gender stereotypes on elections and public opinion; conditions that impact the supply and demand of candidates across genders; and the underrepresentation of women in political institutions. 1 Credit. Session A: May 29 – June 30. Tuition: \$4850. SO

*** PLSC 016b, Power: Authority, Influence and Persuasion** Gordon Silverstein

Too often we conflate force and power. Force is one type of power, but this course is not about force. We are interested in very different sources of power—authority, influence and persuasion. To understand these pathways of power we read U.S. Supreme Court opinions, as well as political science, sociology and psychology. But we also study biography, original letters, speeches, fiction and film, from Machiavelli, Shakespeare, Abraham Lincoln, and Lyndon Johnson to Max Weber, Robert Dahl, Hannah Arendt, Martin Luther King, and Margaret Thatcher as we explore the more subtle, but often more enduring forms of power. SO

*** PLSC 025a / ENGL 011a, Lincoln in Thought and Action** David Bromwich

An intensive examination of the career, political thought, and speeches of Abraham Lincoln in their historical context. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

*** PLSC 028a, American Constitutionalism: Power and its Limits** Gordon Silverstein

What happens when a modern superpower tries to govern itself under an 18th Century Constitution? Using original documents, contemporaneous books, and U.S. Supreme Court cases, this course explores the debates that have defined America's struggle to live up to its sometimes conflicting commitments to liberty, equality and the consent of the governed. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SO

PLSC 113a, Introduction to American Politics Staff

Introduction to American national government. The Constitution, American political culture, civil rights, Congress, the executive, political parties, public opinion, interest groups, the media, social movements, and the policy-making process. SO o Course cr

PLSC 114a, Introduction to Political Philosophy Staff

Fundamental issues in contemporary politics investigated through reflection on classic texts in the history of political thought. Emphasis on topics linked to modern constitutional democracies, including executive power, representation, and political parties. Readings from Plato, Machiavelli, Hobbes, Locke, Rousseau, Madison and Hamilton, Lincoln, and Tocqueville, in addition to recent articles on contemporary issues. SO o Course cr

PLSC 116a, Comparative Politics: States, Regimes, and Conflict Staff

Introduction to the study of politics and political life in the world outside the United States. State formation and nationalism, the causes and consequences of democracy, the functioning of authoritarian regimes, social movements and collective action, and violence. SO o Course cr

PLSC 119b, The Common Good Bryan Garsten

In the pursuit of individual happiness, have we lost sight of the common good? This introduction to political theory explores different ways of understanding what the common good is and how it might be related to individual goals and priorities. Students confront these questions by designing an ideal political system and reflecting on the difficulties they encounter. They are asked to address fundamental challenges ranging from basic stability and civil defense to encouraging citizenship, selecting and training leaders, agreeing on a definition of justice and putting it into practice, and avoiding a slide into tyranny. Emphasis is placed on learning to see the theoretical stakes of contemporary political arguments. Readings include a mix of recent articles

and excerpts from select authors in the history of political thought such as Plato, Machiavelli and Rousseau. HU, SO o Course cr

* **PLSC 138b / MGRK 236b / SOCY 221b, The Euro Crisis** Paris Aslanidis
Examination of how Europe continues to struggle with the social and economic repercussions of the Great Recession and the impact of socioeconomic asymmetries in countries such as Portugal, Ireland, Spain, Italy, and Greece. Topics include the euro as a viable common currency; why and how the Euro crisis erupted and spread; how the COVID-19 fallout will impact the Union. SO

PLSC 148b / HMRT 100b, Theories, Practices, and Politics of Human Rights Staff
Introduction to core human-rights issues, ideas, practices, and controversies. The concept of human rights as a philosophical construct, a legal instrument, a political tool, an approach to economic and equity issues, a social agenda, and an international locus of contestation and legitimation. Required for students in the Multidisciplinary Academic Program in Human Rights. SO o Course cr

* **PLSC 161a / GBLB 344a / HIST 483Ja, Studies in Grand Strategy II** Arne Westad, Jing Tsu, and Michael Brenes
The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. During the fall term, students put into action the ideas studied in the spring term by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Prerequisite: PLSC 321. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. SO

* **PLSC 173a / GBLB 216a, Democracy Promotion and Its Critics** Sarah Bush
A seminar on the history, justifications, and various forms of democracy promotion – and their controversies. Topics include foreign aid, election observers, gender, international organizations, post-conflict development, revolutions, and authoritarian backlash.

PLSC 191a / PHIL 180a, Ethics and International Affairs Thomas Pogge
Moral reflection taken beyond state boundaries. Traditional questions about state conduct and international relations as well as more recent questions about intergovernmental agencies, nongovernmental organizations, and the design of global institutional arrangements. HU

* **PLSC 200a / AFAM 244a, The Politics of Crime and Punishment in American Cities**
Allison Harris
This course explores the relationship between politics and crime and punishment. We review literature focused on political behavior and political institutions to better understand the phenomena we hear about in the news from sentencing algorithms, to felon (dis)enfranchisement, to stop-and-frisk, and police use of force. SO

PLSC 203a / WGSS 204a, Women, Politics, and Policy Staff
This course is an introduction to the way gender structures how we interpret the political world, exploring topics such as women's access to power, descriptive and substantive representation, evaluation of the functioning of political institutions,

and analysis of government policy It also serves as an introduction to reading and producing empirical research on gender in the social sciences. SO o Course cr

PLSC 205a, The American Presidency Staff

Examination of the constitutional law, historical development, and current operations of the American presidency. Topics include formal powers, the organization and mobilization of popular support, the modern executive establishment, and the politics of presidential leadership. SO o Course cr

* **PLSC 207b / EP&E 228b / HUMS 393b, Persuasion and Its Discontents** Norma Thompson

Aristotle argues in his *Rhetoric* that knowledge in its exact form will sometimes not be enough to persuade certain audiences. What then? What strategies are available to us for disarming fierce resistance to good arguments? We consider the psychology of willful blindness and defense mechanisms, from Greek tragedy through Shakespeare, Jane Austen, and Freud. We seek to apprehend how real-life figures and literary characters alike learn to overcome belief in the constructs of their own imaginations. Debates in several politically-charged moments are analyzed: Plato and the Sophists; Burke and Hastings; the Federalists and Anti-Federalists; 19th century abolitionists in America; Churchill on Hitler, and multiple authors on Holocaust denial. HU

* **PLSC 209a / HIST 167a, Congress in the Light of History** David Mayhew

This reading and discussion class offers an overview of U.S. congressional history and politics from 1789 through today, including separation-of-powers relations with the executive branch. Topics include elections, polarization, supermajority processes, legislative productivity, and classic showdowns with the presidency. Emphasized is Congress's participation in a sequence of policymaking enterprises that have taken place from the launch of the nation through recent budget difficulties and handling of climate change. Undergrads in political science and history are the course's typical students, but anyone is welcome to apply. SO

* **PLSC 210a, Political Preferences and American Political Behavior** Joshua Kalla

Introduction to research methods and topics in American political behavior. Focus on decision making from the perspective of ordinary citizens. Topics include utility theory, heuristics and biases, political participation, retrospective voting, the consequences of political ignorance, the effects of campaigns, and the ability of voters to hold politicians accountable for their actions. SO

* **PLSC 212a / EP&E 390a / EVST 212a, Democracy and Sustainability** Michael Fotos
Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

PLSC 214b, The Politics of American Public Policy Jacob Hacker

Public policy in the United States and the methodological and theoretical tools used to study the forces that shape it. Economic and political science perspectives on the policy process and contemporary American governance. Domestic policy issues such as health care, economic inequality, job insecurity, the federal debt, environmental protection, criminal justice, financial regulation, and primary and higher education. SO o Course cr

* **PLSC 215b / EVST 255b / F&ES 255b / GBL 282b, Environmental Law and Politics**

John Wargo

We explore relations among environmental quality, health, and law. We consider global-scale *avoidable* challenges such as: environmentally related human illness, climate instability, water depletion and contamination, food and agriculture, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We evaluate the effectiveness of laws and regulations intended to reduce or prevent environmental and health damages. Additional laws considered include rights of secrecy, property, speech, worker protection, and freedom from discrimination. Comparisons among the US and EU legal standards and precautionary policies will also be examined. Ethical concerns of justice, equity, and transparency are prominent themes. SO

* **PLSC 216a, Money in American Politics** Jacob Hacker

This course offers students an opportunity to do hands-on research on the role of money in shaping American politics and policy at the national, state, and local levels. Students assimilate existing research and theories and identify opportunities for new research and theories, and then carry out this original work in a collaborative setting. Topics include campaign finance, the role of "dark money," lobbying, interest groups, the influence of employers, and the role of philanthropies and foundations. This course requires sufficient prior coursework in political science to grasp high-level concepts and research. Prior coursework on social science methods is preferable but not required. Above all, it requires a passion for conducting new research. SO

* **PLSC 219a / EP&E 497a / EVST 247a, Politics of the Environment** Peter Swenson
Historical and contemporary politics aimed at regulating human behavior to limit damage to the environment. Goals, strategies, successes, and failures of movements, organizations, corporations, scientists, and politicians in conflicts over environmental policy. A major focus is on politics, public opinion, corporate interests, and litigation in the U.S. regarding climate change. SO

* **PLSC 220b / PLSC S220b / WGSS 220b, Women & Politics** Andrea Aldrich

Exploration of theoretical and empirical work in political science to study the relationship between women and politics in the United States and around the world. Topics include women's descriptive and substantive representation in legislative and executive branch politics in democratic regimes; the impact of gender stereotypes on elections and public opinion; conditions that impact the supply and demand of candidates across genders; and the underrepresentation of women in political institutions. WR, SO

* **PLSC 223b / EDST 223b, Learning Democracy: The Theory and Practice of Civic Education** Amir Fairdosi

This is a seminar on the theory and practice of civic education. We begin by investigating philosophies of civic education, asking such questions as: What is civic education and what is its purpose? What knowledge, skills, and values promote human flourishing and the cultivation of a democratic society? What role can and should schools play in this cultivation? In the next part of the course we focus on civic education in practice, exploring various approaches to teaching civics and the empirical evidence in support of each method's effectiveness. We also discuss variations in access to civic education opportunities across socioeconomic, demographic, and national contexts, and how societies might deal with these disparities. SO

* **PLSC 224b, Political Leadership** Stephen Skowronek

Examination of political leadership as both a concept and a practice. Survey of classic works by Machiavelli, Carlyle, Weber, Lenin, and Schumpeter. Consideration of the difference between transformational leadership and transactional leadership, and between executive leadership and reform leadership. Issues include the conundrum of "democratic leadership" and the role of narrative in leadership. WR, SO

* **PLSC 228a / EP&E 306a, First Amendment and Ethics of Law** Karen Goodrow

This course addresses the First Amendment and freedom of speech, focusing on the ethical implications of restrictions on free speech, as well as the exercise of free speech. Course topics and discussions include the "fighting words" doctrine, hate speech, true threats, content regulated speech, freedom of speech and the internet, and the so-called "right to be forgotten." By the end of the course, students recognize the role free speech plays in society, including its negative and positive impacts on various segments of society. Students also have an understanding of the competing interests arising from the First Amendment's right to free speech, and can analyze how these competing interests are weighed and measured in the United States as compared with other countries. SO

* **PLSC 232a / EDST 232a, US Federal Education Policy** Mira Debs

Though education policy is typically viewed as a state and local issue, the federal government has taken a significant role in shaping policy since the end of World War II. The centralization of education policy has corresponded with changing views in society for what constitutes an equitable educational opportunity. This class is divided into three topics: 1) the federal role in education broadly (K-12) and the accountability movement in K-12: from the No Child Left Behind Act to the Common Core State Standards (and cross-national comparisons to US schools), 2) federal role in higher education, and 3) the education industry (teachers unions and think tanks). EDST 110 recommended. SO

PLSC 233b, Constitutional Law Akhil Reed Amar

An introduction to the main themes of the American Constitution – popular sovereignty, separation of powers, federalism, and rights – and to basic techniques of constitutional interpretation. Special emphasis on the interplay of constitutional text, judicial doctrine, and constitutional decision making outside the judiciary. SO
o Course cr

* **PLSC 234b, Political Participation** Alan Gerber

What explains mass political participation and what difference does the level of political participation make for elections outcomes and policy? How do voting rates differ across groups and what accounts for this variation? Which voting laws promote or inhibit participation? What is the normative case for greater political participation? We address these and other fundamental questions about participation in democratic political systems. Students engage in close reading and critical analysis of the key scholarship on political participation. Class discussion focuses on how social scientists develop theories and how they test those theories through lab experiments, field experiments, natural experiments, and other research designs. Some prior background in statistics is strongly recommended and background in microeconomics or game theory is recommended. A previous course in statistics and a previous course in microeconomics or game theory are strongly recommended. SO

* **PLSC 238a / EDST 238a, The Politics of Public Education** Jennifer Berkshire
 Examination of the deep political divides, past and present, over public education in the United States. Fundamental questions, including who gets to determine where and how children are educated, who should pay for public education, and the role of education as a counter for poverty, remain politically contested. The course explores these conflicts from a variety of political perspectives. Students learn journalistic methods, including narrative, opinion and digital storytelling, developing the necessary skills to participate in the national conversation around education policy and politics.
 WR, SO

* **PLSC 239a / EP&E 239a, Political Representation** Amir Fairdosi
 The notion of political representation lies at the center of government in the United States and much of the rest of the world. In this course, we examine the features of political representation, both in theory and practice. We ask (and possibly find ourselves struggling to answer!) such questions as: What is political representation? Should we have a representative system as opposed to something else like monarchy or direct democracy? Should representatives demographically resemble those they represent, or is that not necessary? How do things like congressional redistricting, electoral competition, and term limits affect the quality of representation? Do constituents' preferences actually translate into policy in the United States, and if so, how? In Part I of this course, we discuss the theoretical foundations upon which representative government rests. In Part II, we move beyond theories of representation and on to the way political representation actually operates in the United States. In Part III, we move beyond the ways in which representation works and focus instead on some ways in which it doesn't work. Proposed solutions are also explored. SO

* **PLSC 246b, Twenty-First-Century Political Journalism** Colin McEnroe
 Examination of the state of the press before, during, and after the 2016 election, with specific focus on fairness, journalistic business models, facts and fact-checking, social media, data journalism, and the intersection of culture and politics. Consideration of contemporary questions, with occasional look-backs to Watergate and the JFK assassination.

* **PLSC 247a / AMST 245a / ENGL 246a, The Media and Democracy** Joanne Lipman
 In an era of "fake news," when trust in mainstream media is declining, social platforms are enabling the spread of misinformation, and new technologies are transforming the way we consume news, how do journalists hold power to account? What is the media's role in promoting and protecting democracy? Students explore topics including objectivity versus advocacy and hate speech versus First Amendment speech protections. Case studies will span from 19th century yellow journalism to the #MeToo and #BlackLivesMatter movements, to the Jan. 6 Capitol attack and the advent of AI journalism. SO

* **PLSC 253a / ENGL 467a, Journalism** Steven Brill
 Examination of the practices, methods, and impact of journalism, with focus on reporting and writing; consideration of how others have done it, what works, and what doesn't. Students learn how to improve story drafts, follow best practices in journalism, improve methods for obtaining, skeptically evaluating, and assessing information, as well as writing a story for others to read. The core course for Yale Journalism Scholars. No prerequisites. WR

* **PLSC 255b / EP&E 229b, America From Scratch** Amir Fairdosi

What would the United States look like without a Supreme Court? Without a Senate?

Without states? What if the United States had *ten* presidents instead of one? Or no president at all? As radical as these constitutional propositions might sound, they were all at least considered by America's founders. In this class, we examine such proposals—proposals considered unthinkable today, but not during the Constitutional Convention or in other countries throughout history. We read the American founding documents, speeches, and letters considering these “radical” constitutional designs and connect them to attempts to realize these reforms today. so

* **PLSC 258b / EP&E 336b / PLSC 841b, Democracy and Bureaucracy** Ian Turner

Exploration of what government agencies do and why; focus on issues of accountability and the role of bureaucracy in representative democracy. Understanding how bureaucracy works internally and how it is affected by interactions with other political actors and institutions. so

PLSC 263b / AFAM 164b / URBN 304b, The Politics of "The Wire": HBO's Portrayal of the American City Allison Harris

This class uses HBO's groundbreaking series "The Wire" to investigate cities, their problems, and their politics. We watch all five seasons of the show as social scientists and use it to learn about important social scientific concepts and theories, and apply those theories to such phenomena as the politics of crime, policing, and local elections. Each week, the assigned readings—articles and book excerpts from political science as well as other social sciences—highlight the social scientific concepts displayed in the assigned episodes and provide context for lectures. All of the assignments work together to expose students to social science, how social science is conducted, and how political science can help us better understand the world around us. so o Course cr

* **PLSC 274a, Cities: Making Public Choices in New Haven** John DeStefano

Examination of cities, particularly the relationship of people to place and most importantly to one another, through the prism and experiences of the City of New Haven. Exploration of how concepts of social capital and legitimacy of institutions in policy design and execution, are key to the well being of community residents. How cities, in the context of retreating or antagonistic strategies by the state and federal governments, can be key platforms for future economic and social wealth creation. so

* **PLSC 275b / AMST 487b, The Rise of “Presidentialism” in the United States**

Stephen Skowronek

This course is about the rise and makeshift character of “presidentialism” in the United States. It will examine different sources of power that have, singly and in combination, put the presidency at the center of government and politics. These include: 1) popular power: in elections, public opinion, parties, and social movements; 2) institutional power: in control of the executive branch, military command, and war making. Readings will delve into cases in which each of these sources of power figured prominently. In every particular, the seminar will consider the strains that this power has put on the constitutional frame. For advanced undergraduates, or by permission

so

* **PLSC 281a / EDST 281a / HIST 404a / HUMS 303a, What is the University?**

Mordechai Levy-Eichel

The University is one of the most influential – and underexamined – kinds of corporations in the modern world. It is responsible both for mass higher education and for elite training. It aims to produce and disseminate knowledge, and to prepare graduates for work in all different kinds of fields. It functions both as a symbol and repository of learning, if not ideally wisdom, and functions as one of the most important sites of networking, patronage, and socialization today. It is, in short, one of the most alluring and abused institutions in our culture today, often idolized as a savior or a scapegoat. And while the first universities were not founded in the service of research, today's most prestigious schools claim to be centrally dedicated to it. But what is research? Where does our notion of research and the supposed ability to routinely produce it come from? This seminar is a high-level historical and structural examination of the rise of the research university. We cover both the origins and the modern practices of the university, from the late medieval world to the modern day, with an eye toward critically examining the development of the customs, practices, culture, and work around us, and with a strong comparative perspective. Topics include: tenure, endowments, the committee system, the growth of degrees, the aims of research, peer-review, the nature of disciplinary divisions, as well as a host of other issues. HU, SO

* **PLSC 283b / EP&E 235b / PHIL 457b, Recent Work on Justice** Thomas Pogge
In-depth study of one contemporary book, author, or debate in political philosophy, political theory, or normative economics. Focus varies from year to year based on student interest and may include a ground-breaking new book, the life's work of a prominent author, or an important theme in contemporary political thought. HU

PLSC 290a / SOCY 151a, Foundations of Modern Social Theory Staff
Major works of social thought from the beginning of the modern era through the 190s. Attention to social and intellectual concepts, conceptual frameworks and methods, and contributions to contemporary social analysis. Writers include W.E.B. Du Bois, Simone De Beauvoir, Adam Smith, Thomas Hobbes, Jean-Jacques Rousseau, Immanuel Kant, Emile Durkheim, Max Weber, and Karl Marx. SO o Course cr

* **PLSC 291a / PHIL 464a, Justice, Taxes, and Global Financial Integrity** Thomas Pogge

Study of the formulation, interpretation, and enforcement of national and international tax rules from the perspective of national and global economic justice. Previous courses in one or two of the following: law, economics, political science, or political philosophy. HU

* **PLSC 296b / PHIL 489b, Political Philosophy in a Time of Crisis: Strauss, Berlin, Oakeshott, and Aron** Steven Smith

This course examines four giants of twentieth-century political philosophy—Leo Strauss, Isaiah Berlin, Michael Oakeshott, and Raymond Aron—who all wrote under the shadow of totalitarianism. The themes of the course include (but are not limited to) the sources of contemporary anti-liberalism, the revival of political philosophy in an age of positivism, the case for value pluralism, and the role of liberal education in a free society. One of the following are recommended, but not required: Directed

Studies, Introduction to Political Philosophy, courses in relevant areas in history or philosophy. HU, SO

PLSC 298a / WGSS 207a, Gender, Justice, Power, Institutions Staff

Welcome to *Gender, Justice, Power & Institutions*, a mouthful of abstractions that we work together to comprehend and critique throughout the semester. An aspiration of this course, as political as it is pedagogic, is that students approach their world-building projects with an enriched understanding of the ways gender, justice, and power shape and are shaped by institutions, inequality, and theory. Part I opens up some preliminary considerations of our course terms by investigating the case of abortion, abortion rights, and reproductive justice. The topic is politically loaded, philosophically complex, and emotionally challenging; the point is not to convince you of the permissibility or impermissibility of abortion, but to explore how the contested case configures, imbricates, and puts pressure on our course terms. In Part II, we examine the historical and conceptual coordinates of the courses first three titular terms: is gender a subjective identification, social ascription, or axis of inequality? Is justice a matter of redistribution, recognition, resources, capabilities, or something more hedonic? Where is power located, or where does it circulate? Who are what leverages power? In Part III, we consider ways gender, justice, and power travel within and across several institutions: heterosexuality, the university, the trafficking/anti-trafficking industrial complex, the prison, and the bathroom. Part IV closes out the course by focusing on the reconfiguration of democratic institutions in late modernity; or, can institutions "love us back" under the the political economy we shorthand as "neoliberalism"? SO o Course cr

* **PLSC 302a / HUMS 432a, Rousseau's Emile** Bryan Garsten

A close reading of Jean-Jacques Rousseau's masterpiece, *Emile*. Though the book poses as a guide to education, it has much grander aspirations; it offers a whole vision of the human condition. Rousseau called it his "best and worthiest work" and said he believed it would spark a revolution in the way that human beings understand themselves. Many historians of thought believe that the book has done just that, and that we live in the world it helped to create – a claim we consider and evaluate. Presented as a private tutor's account of how he would arrange the education of a boy named Emile from infancy through young adulthood, the book raises fundamental questions about human nature and malleability, how we learn to be free, whether we can view ourselves scientifically and still maintain a belief in free will, whether we are need of some sort of religious faith to act morally, how adults and children, and men and women, ought to relate to one another, how the demands of social life and citizenship affect our happiness – and more. Ultimately the question at issue is whether human beings can find a way to live happily and flourish in modern societies. Prerequisite: One course in political thought, intellectual history or philosophy. HU

* **PLSC 306a / CLCV 377a / HUMS 177a, Tragedy and Politics** Daniel Schillinger

The canonical Greek tragedians – Aeschylus, Sophocles, and Euripides – dramatize fundamental and discomfiting questions that are often sidelined by the philosophical tradition. In this seminar, we read plays about death, war, revenge, madness, impossible choices, calamitous errors, and the destruction of whole peoples. Aeschylus, Sophocles, and Euripides were also piercing observers of political life. No less than Plato and Aristotle, the Attic tragedians write to elicit reflection on the basic patterns of politics: democracy and tyranny, war and peace, the family and the city,

the rule of law and violence. Finally, we also approach Greek tragedy through its reception. Aristophanes, Plato, Aristotle, and Nietzsche: all these thinkers responded to tragedy. Texts include Aeschylus, *Oresteia*; Aristophanes, *Frogs* and *Lysistrata*; Euripides, *Bacchae*, *Heracles*, and *Trojan Women*; Nietzsche, *The Birth of Tragedy*; Plato, *Symposium*; and Sophocles, *Antigone*, *Philoctetes*, and *Oedipus Tyrannus*. Previous work in political theory, classics, or philosophy is recommended. HU

* **PLSC 312a, Punishment** Alexander Rosas

This course is about punishment. The power of the state to restrict freedom, to impose pain, even death, and to mark one as 'criminal' is remarkable, and this course interrogates the theories that underlie that power. In what cases and for what reasons should the state have the power to punish, and where should the moral and legal limits on that power lie? What should the goals of punishment be, and which forms of punishment align most closely with them? What is the nature and desired role of vengeance and mercy in determining whether, when, and how to punish? What obligations should a society have to punish but also to those whom it punishes? Should the state have the power to shame and humiliate? What does punishment reveal about society more broadly? This course considers these and other related questions primarily through works in political and legal theory, but it also takes an interdisciplinary approach and elaborates and evaluates the theoretical materials through a discussion of numerous legal and other case studies. SO

* **PLSC 313a / EP&E 380a, Bioethics, Politics, and Economics** Stephen Latham

Ethical, political, and economic aspects of a number of contemporary issues in biomedical ethics. Topics include abortion, assisted reproduction, end-of-life care, research on human subjects, and stem cell research. SO

* **PLSC 314a / HUMS 351a, The American Imagination: From the Puritans to the Civil War** Paul Grimstad and Mordechai Levy-Eichel

Interdisciplinary examination of the uniqueness of the American experience from the time of the Puritans to the Civil War. Readings draw on major works of political theory, philosophy, and literature. HU

* **PLSC 321b / GLBL 342b / HIST 482Jb, Studies in Grand Strategy I** Arne Westad, Jing Tsu, and Michael Brenes

The study of grand strategy, of how individuals and groups can accomplish large ends with limited means. The spring term focuses on key moments in history that illustrate strategic thinking in action. During the summer, students undertake research projects or internships analyzing strategic problems or aspects of strategy. The following fall, students put their ideas into action by applying concepts of grand strategy to present day issues. Admission is by application only; the cycle for the current year is closed. This course does not fulfill the history seminar requirement, but may count toward geographical distributional credit within the History major for any region studied, upon application to the director of undergraduate studies. Previous study courses in political science, history, global affairs, or subjects with broad interdisciplinary relevance encouraged. HU, SO

* **PLSC 330a / EP&E 246a, Participatory Democracy** Amir Fairdosi

What does democracy look like without elections? In this class, we discuss the theory and practice of "participatory" forms of democracy (i.e. those that allow and

encourage citizens to influence policy directly, rather than indirectly through elected representatives). SO

* **PLSC 334b, The New York Intellectuals: Politics, Art, Argument** Mordechai Levy-Eichel

This course is an examination and consideration of one of the most influential groups of political and cultural critics of the 20th century: the New York Intellectuals. A loose group of political and literary critics, mostly Jewish, they played formative roles in many of the key political and cultural debates of the 20th century, from the spread of Marxism and Modernism, to the origins of the Cold War, from debates about the alienation of modern man, to the rise of modern (neo-) conservatism. Who were they? And now that they have mostly passed away, and what has their legacy been? A background in 20th century history and/or the history of political thought/intellectual history is helpful. HU

PLSC 342b / EP&E 220b, Strategic Models of Politics Milan Svobik

Introduction to formal political theory including application of rational choice and game theoretic analysis. Key topics and findings include: why voters vote in elections; how candidates choose platforms; why common resources tend to be overexploited; whether the state is needed for public good provision; how electoral systems shape politicians' and voters' behavior; whether voters can hold politicians accountable for their performance in office; how constitutions affect politicians' incentives to compromise; and why countries fight wars. SO o Course cr

* **PLSC 347a / EP&E 328a / S&DS 172a, YData: Data Science for Political Campaigns** Joshua Kalla

Political campaigns have become increasingly data driven. Data science is used to inform where campaigns compete, which messages they use, how they deliver them, and among which voters. In this course, we explore how data science is being used to design winning campaigns. Students gain an understanding of what data is available to campaigns, how campaigns use this data to identify supporters, and the use of experiments in campaigns. This course provides students with an introduction to political campaigns, an introduction to data science tools necessary for studying politics, and opportunities to practice the data science skills presented in S&DS 123, YData.

QR

* **PLSC 350a, From Concept to Measure: Empirical Inquiry in Social Science** Sarah Khan

This course focuses on a specific aspect of the research design process: the operationalization of abstract concepts into concrete measures that can be used for analysis and inference. The task of measurement is common to qualitative, quantitative and mixed-method research, and this course draws on lessons from varied approaches. Course readings span: 1. “classic” theoretical texts dealing with broad concepts of interest to political scientists; 2. empirical work that develops/applies novel strategies to measure foundational concepts; 3. work that combines conceptualization (developing new concepts and/or reimagining old ones) and measurement. This course is intended for advanced undergraduate students with an interest in social science research and graduate students in the process of designing original research. SO

* **PLSC 354a / EP&E 250a, The European Union** David Cameron

Origins and development of the European Community and Union over the past fifty years; ways in which the often-conflicting ambitions of its member states have shaped the EU; relations between member states and the EU's supranational institutions and politics; and economic, political, and geopolitical challenges. so

PLSC 356b, State and Nation in the Caucasus Egor Lazarev

This course examines the tensions between various state-building projects and nationalisms in the Caucasus. We cover both the independent nations of the South Caucasus—Armenia, Azerbaijan, and Georgia, “unrecognized states” such as Abkhazia and Nagorno-Karabakh, and the regions of the Russian Federation situation in the North Caucasus, primarily Chechnya and Dagestan. Why the Caucasus is often characterized as “the hot spot” on geopolitical maps? What explains armed conflicts in the region? How do people live in unrecognized states? Why do some religious Muslims of the North Caucasus seem to support the Russian state? We put historical transformations in the Caucasus into perspective with the nature of the imperial government of the Russian Empire and the Soviet nation-building project. We explore the fateful period of the collapse of the Soviet Union—nationalist mobilizations and wars of collapse that brought to life several unrecognized states. We analyze the transformations of political regimes and state-society relations in the Caucasus from a comparative perspective. Throughout the class, we explore tensions between state and nation and also look beyond the nation as the main organizing principle of political life and explore such cleavages as class, ethnicity, religion, and gender. so

PLSC 357b / EAST 310b / GLBL 309b, The Rise of China Daniel Mattingly

Analysis of Chinese domestic and foreign politics, with a focus on the country's rise as a major political and economic power. Topics include China's recent history, government, ruling party, technology, trade, military, diplomacy, and foreign policy. so o Course cr

* **PLSC 361a, Democratic Backsliding** Milan Svobik

This class examines the process of democratic backsliding, including its causes, and consequences. Our analysis builds on prominent contemporary and historical cases of democratic backsliding, especially Hungary, India, Poland, Russia, and Venezuela. Implications for democratic stability in the United States is considered. so

* **PLSC 364a / AFST 366a / EP&E 305a / HIST 367a, Bureaucracy in Africa:**

Revolution, Genocide, and Apartheid Jonny Steinberg

A study of three major episodes in modern African history characterized by ambitious projects of bureaucratically driven change—apartheid and its aftermath, Rwanda's genocide and post-genocide reconstruction, and Ethiopia's revolution and its long aftermath. Examination of Weber's theory bureaucracy, Scott's thesis on high modernism, Bierschenk's attempts to place African states in global bureaucratic history. Overarching theme is the place of bureaucratic ambitions and capacities in shaping African trajectories.

* **PLSC 365b / GLBL 317b, China's Sovereign Lending** James Sundquist

This is a course about when governments borrow from foreign lenders and the political causes and consequences of the decision to borrow. To enable us to focus on politics, some training in economics is required. We begin by reviewing the internal determinants of China's external lending behavior. Next, we study how international

finance collides with domestic politics creating both opportunities and challenges for borrowers. The second half of the course surveys topics of contemporary importance: how effective is Chinese economic statecraft? Can China expect to be repaid in full? Will the renminbi become a global reserve currency? Prerequisite: Three Economics courses, including either ECON 122 or ECON 122. SO

* **PLSC 372a / EP&E 242a, Politics and Markets** Peter Swenson

Examination of the interplay between market and political processes in different substantive realms, time periods, and countries. Inquiry into the developmental relationship between capitalism and democracy and the functional relationships between the two. Investigation of the politics of regulation in areas such as property rights, social security, international finance, and product, labor, and service markets. Topics include the economic motives of interest groups and coalitions in the political process. SO

* **PLSC 375a / GBLB 215a / LAST 386a / MGRK 237a / SOCY 389a, Populism** Paris Aslanidis

Investigation of the populist phenomenon in party systems and the social movement arena. Conceptual, historical, and methodological analyses are supported by comparative assessments of various empirical instances in the US and around the world, from populist politicians such as Donald Trump and Bernie Sanders, to populist social movements such as the Tea Party and Occupy Wall Street. WR, SO

* **PLSC 376b / ER&M 376b / MGRK 304b / SOCY 307b, Extreme and Radical Right Movements** Paris Aslanidis

Extreme and radical right movements and political parties are a recurrent phenomenon found in most parts of the world. Discussion of their foundational values and the causes of their continuous, even increasing, support among citizens and voters. SO

PLSC 378a / AFAM 186a / LAST 214a / SOCY 170a, Contesting Injustice Staff

Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. SO
o Course cr

PLSC 381b / AFST 381b, Government and Politics in Africa Katharine Baldwin

The establishment and use of political power in selected countries of tropical Africa. The political role of ethnic and class cleavages, military coups, and the relation between politics and economic development. SO o Course cr

PLSC 382a / LAST 200a, Introduction to Latin American Politics Staff

Introduction to major theories of political and economic change in Latin America, and to the political and economic systems of particular countries. Questions include why the continent has been prone to unstable democratic rule, why countries in the region have adopted alternatively state-centered and market-centered economic models, and, with the most recent wave of democratization, what the remaining obstacles might be to attaining high-quality democracy. SO o Course cr

* **PLSC 383a / EP&E 403a / GBLB 382a, Designing and Reforming Democracy** Ian Shapiro and David Froomkin

What is the best electoral system? Should countries try to limit the number of political parties? Should chief executives be independently elected? Should legislatures have

powerful upper chambers? Should courts have the power to strike down democratically enacted laws? These and related questions are taken up in this course. Throughout the semester, we engage in an ongoing dialogue with the *Federalist Papers*, contrasting the Madisonian constitutional vision with subsequent insights from democratic theory and empirical political science across the democratic world. Where existing practices deviate from what would be best, we also attend to the costs of these sub-optimal systems and types of reforms that would improve them. Prerequisite: At least one prior course in American politics or comparative politics. so

*** PLSC 384a / EAST 402a, Political Psychology and Comparative Politics** Staff

Political psychology seminars typically focus on American political behavior, and most comparative politics seminars do not directly address political psychology. This seminar aims to bridge that gap by examining the important role of psychology within the broader context of comparative politics. The goal of the seminar is to develop your knowledge and understanding of how political attitudes and behaviors are shaped, how they evolve, and the ways they may influence behavioral outcomes. We explore why people engage in politics, what factors help them form or revise their political beliefs and perspectives, and how those attitudes are manifest (or not) through political action. The role of individual personality traits, human cognition, and both individual and collective identity are considered—in relation to both the general public as well as political insiders. (We also discuss whether making a distinction between the two is relevant and necessary.) Since the course focuses on comparative politics, it closely examines ways that diverse institutions, cultural values, and social environments affect individual political attitudes. We also explore whether there are universal political behaviors and attitudes—and if so, how they should be identified and studied. so

PLSC 387a / GLBL 287a / SOCY 230a, Capitalism and Crisis Staff

This course provides an introduction to the study of comparative capitalism. We examine how institutions organizing labor markets, finance and the welfare state differ systematically across advanced industrialized countries and the consequence of these differences for a variety of economic and policy outcomes. These include economic growth, unemployment, levels of inequality and so on. Can we meaningfully talk about a German or Swedish model and if so, what are the main institutional arrangements that differ across these economies? How do institutions in these countries differ from more liberal capitalist economies, such as the United States? In the second part of the course, we examine the responses of different countries to a variety of economic shocks. These include the stagflation crisis of the 1970's, the slowdown in economic growth, deindustrialization, the rise in unemployment and inequality and the migration crisis. We examine how existing political and economic institutions have shaped the policy trade-offs encountered by different countries and we explain the different political responses taken in response to these crises. During the period between November 14 and November 24, enrollment will be limited to majors. After November 24, registration will be opened to all Yale College students. Please register your interest via the Yale Course Search website. so o Course cr

*** PLSC 393a, Comparative Constitutionalism and Legal Institutions** Steven Calabresi

Introduction to the field of comparative constitutional law. Constitutional texts, materials, and cases drawn primarily from those constitutional democracies that are also members of the Group of Twenty Nations and that respect judicial independence. so

*** PLSC 395b / EP&E 335b, Parties, Interest Groups and Public Policies in Advanced Industrialized Economies** Isabela Mares

This course provides an introduction to the political science literature studying the economic and social policy institutions of contemporary capitalism. In the first part of the course, we introduce the literature examining ‘varieties of capitalist economies’ and examine the most significant factors that explain why the organization of firms, interest groups, and social policies varies significantly across advanced industrialized economies. In the second part of the course, we turn to the study of change in these institutions in recent decades. We examine how external economic factors (such as globalization) or endogenous economic transformations (such as slowdown in growth, demographic aging) have constrained the policy choices available to labor market actors (such as unions or employers associations) and political parties. We examine the resulting policy choices made in different countries in response to these new economic constraints. Prerequisite: PLSC 116. SO

*** PLSC 397a / SOCY 201a, Right-Wing Extremism, Antisemitism, & Terrorism**

Liram Koblentz

This course has been specially created to provide students with an in-depth understanding of far-right extremism, with a detailed focus on examining the current state of antisemitism. Students learn about the profound connections between these two phenomena and obtain a wide-ranging perspective on the underlying dynamics and factors, many of them born of the digital age, that increase the danger that these two phenomena pose. SO

PLSC 403b / SAST 245b, Political Economy of Gender Inequality Sarah Khan

This course focuses on the political and economic underpinnings and implications of gender inequality in comparative context. We draw on evidence from different cases (with a heavy skew towards the South Asia region) to guide our inquiry. The course introduces a variety of theoretical and methodological approaches, patterns and predictions emerging from empirical research, and context specific lessons. SO

*** PLSC 410a / SOCY 410a, Political Protests** Maria Jose Hierro

The 2010s was the “decade of protest,” and 2019 capped this decade with an upsurge of protests all over the world. In 2020, amidst the Covid-19 pandemic, the US is witnessing the broadest protests in its history. What are the roots of these protests? Under what conditions does protest start? Why do people decide to join a protest? Under what conditions do protests succeed? Can repression kill protest movements? Focusing on recent protest movements across the world, this seminar addresses these, and other questions related to the study of political protest. SO

*** PLSC 412a / PLSC 780a, Law & Society in Comparative Perspective** Egor Lazarev

This advanced seminar is about the functions of law across historical, political, and cultural contexts. We discuss what is law, why people obey the law, and how do societies govern themselves in the absence of strong state legal institutions. The class explores the relationship between law and colonialism, the functioning of law under the authoritarianism and democracy, and in conflict-ridden societies. SO

PLSC 416b, Repression and Control in Dictatorships Jennifer Gandhi

This course examines state repression and control in dictatorships. We investigate why dictators employ state repression, the ways in which they do so (including censorship, purges, and mass violence), and the institutions and social connections they use to carry

out repression. We also discuss the legacy of state repression for society and regime stability. (none) so

* **PLSC 417b / EDST 282b, Comparative International Education** Mira Debs
 Around the world, education is one of the central institutions of society, developing the next generation of citizens, workers and individuals. How do countries balance these competing priorities? In which ways do countries converge on policies, or develop novel approaches to education? Through the course, students learn the a) impact of colonialism on contemporary education systems, b) the competing tensions of the demands of citizen and worker and c) how a variety of educational policies are impacted around the world and their impact on diverse populations of students. EDST 110 Foundations in Education Studies recommended. WR, SO

* **PLSC 429a / AFST 385a / EP&E 350a / HIST 391a / HLTH 385a, Pandemics in Africa: From the Spanish Influenza to Covid-19** Jonny Steinberg
 The overarching aim of the course is to understand the unfolding Covid-19 pandemic in Africa in the context of a century of pandemics, their political and administrative management, the responses of ordinary people, and the lasting changes they wrought. The first eight meetings examine some of the best social science-literature on 20th-century African pandemics before Covid-19. From the Spanish Influenza to cholera to AIDS, to the misdiagnosis of yaws as syphilis, and tuberculosis as hereditary, the social-science literature can be assembled to ask a host of vital questions in political theory: on the limits of coercion, on the connection between political power and scientific expertise, between pandemic disease and political legitimacy, and pervasively, across all modern African epidemics, between infection and the politics of race. The remaining four meetings look at Covid-19. We chronicle the evolving responses of policymakers, scholars, religious leaders, opposition figures, and, to the extent that we can, ordinary people. The idea is to assemble sufficient information to facilitate a real-time study of thinking and deciding in times of radical uncertainty and to examine, too, the consequences of decisions on the course of events. There are of course so many moving parts: health systems, international political economy, finance, policing, and more. We also bring guests into the classroom, among them frontline actors in the current pandemic as well as veterans of previous pandemics well placed to share provisional comparative thinking. This last dimension is especially emphasized: the current period, studied in the light of a century of epidemic disease, affording us the opportunity to see path dependencies and novelties, the old and the new. so

* **PLSC 431a or b / GBLB 289a or b / HIST 245Ja or b, War and Peace in Northern Ireland** Bonnie Weir
 Examination of theoretical and empirical literature in response to questions about the insurgency and uneasy peace in Northern Ireland following the peace agreement of 1998 which formally ended the three-decade long civil conflict known widely as The Troubles and was often lauded as the most successful of its kind in modern history. Consideration of how both the conflict and the peace have been messier and arguably more divisive than most outside observers realize. so

PLSC 435a / MMES 290a / RLST 290a, Islam Today: Modern Islamic Thought Frank Griffel

Introduction to Islamic thought after 1800, including some historical background. The development of Islamic modernism in the 19th century and of Islamic fundamentalism in the 20th. Islam as a reactive force to Western colonialism; the ideals of Shari'a, Islam

as a political ideology, and the emergence of Jihad movements. Different kinds of Salafism, Islamic liberalism, and feminism as well as the revival of Islam's intellectual heritage. HU o Course cr

PLSC 437b / SOCY 223b, Nationalism and Ethnic Politics Maria Jose Hierro

Introduction to the study of nationalism and ethnic politics. The course examines how ethnic and national identities are shaped, how the nation emerged and became the main form of political organization, and how nationalism and ethnic conflict drive politics in the world. SO

*** PLSC 438a, Applied Quantitative Research Design** Shiro Kuriwaki

Research designs are strategies to obtain empirical answers to theoretical questions. Research designs using quantitative data for social science questions are more important than ever. This class, intended for advanced students interested in social science research, trains students with best practices for implementing rigorous quantitative research. We cover techniques in causal inference, prediction, and missing data, such as fixed effects, time series, instrumental variables, survey weighting, and shrinkage. This is a hands-on, application-oriented class. Exercises involve programming and statistics used in exemplary articles in quantitative social science. The final project advances a research question built on a replication of a paper chosen in consultation with the instructor. Prerequisite: Any statistics or data science course that teaches ordinary least squares regression and p-values, such as S&DS 230. Some past or concurrent experience with a programming language such as R is also presumed. Ph.D. students in political science can join without prerequisite. QR, SO o Course cr

*** PLSC 445a / GBL 244a, The Politics of Fascism** Lauren Young

The subject of this course is fascism: its rise in Europe in the 1930s and deployment during the Second World War as a road map to understanding the resurgence of nationalism and populism in today's political landscape, both in Europe and the United States. The course begins with an examination of the historic debates around fascism, nationalism, populism, and democracy. It then moves geographically through the 1930s and 1940s in Europe, looking specifically at Weimar Germany, Vichy France, the rise of fascism in England in the 1930s, and how fascist ideology was reflected in Italy's colonial ambitions during the Abyssinian War. The course examines fascism and the implementation of racial theory and the example of anti-Semitism as an ideological and political tool. It also looks at the emergence of fascism in visual culture. The second part of the seminar turns to fascist ideology and the realities of today's political world.

We examine the political considerations of building a democratic state, question the compromise between security and the preservation of civil liberties and look at the resurgence of populism and nationalism in Europe and the US. The course concludes by examining the role of globalization in contemporary political discourse. SO

*** PLSC 450b / GBL 341b, The Geopolitics of Democracy** Lauren Young

The threats to liberal democracy are being widely debated, from the US and Europe to developing nations. In order for democracy to continue to thrive as the cornerstone of Western governance, it must adapt and be relevant to citizens of the 21st century. This course examines our appreciation of what constitutes democracy today and how to apply those understandings to the challenges of the 21st century. Our discussions look at the characteristics of democratic leaders and debate whether America, the bulwark of liberal democracy in the 20th century, is still an exporter of democracy and how that matters in today's world. We then look at how to protect and adapt democratic

institutions such as free elections, civil society, dissent, and the free press in the face of a rising wave of populism and nationalism. The course examines how refugee crises from conflict regions and immigration impact democracies and debate the accelerating paradigm shifts of income inequality and technology on democratic institutions. We conclude the course with a discussion of the forms of democratic governance that are meaningful in the 21st century and the practicalities of designing or reforming democratic institutions to confront current challenges. SO

PLSC 452a / S&DS 102a, Introduction to Statistics: Political Science Jonathan Reuning-Scherer

Statistical analysis of politics, elections, and political psychology. Problems presented with reference to a wide array of examples: public opinion, campaign finance, racially motivated crime, and public policy. QR

PLSC 453a / S&DS 103a, Introduction to Statistics: Social Sciences Jonathan Reuning-Scherer

Descriptive and inferential statistics applied to analysis of data from the social sciences. Introduction of concepts and skills for understanding and conducting quantitative research. QR

*** PLSC 466a / HIST 268Ja / JDST 351a / RLST 324a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

*** PLSC 471a, Individual Reading for Majors** Andrea Aldrich

Special reading courses may be established with individual members of the department. They must satisfy the following conditions: (1) a prospectus describing the nature of the program and the readings to be covered must be approved by both the instructor and the director of undergraduate studies; (2) the student must meet regularly with the instructor for an average of at least two hours per week; (3) the course must include a term essay, several short essays, or a final examination; (4) the topic and/or content must not be substantially encompassed by an existing undergraduate or graduate course. All coursework must be submitted no later than the last day of reading period.

*** PLSC 474a, Directed Reading and Research for Junior Intensive Majors** Andrea Aldrich

For juniors preparing to write yearlong senior essays as intensive majors. The student acquires the methodological skills necessary in research, identifies a basic reading list pertinent to the research, and prepares a research design for the project. All coursework must be submitted no later than the last day of reading period.

* **PLSC 480a or b, One-Term Senior Essay** Andrea Aldrich

For seniors writing the senior essay who do not wish, or are unable, to write the essay in a department seminar. Students must receive the prior agreement of a member of the department who will serve as the senior essay adviser, and must arrange to meet with that adviser on a regular basis throughout the term.

* **PLSC 490a or b, The Senior Colloquium** Maria Jose Hierro

Presentation and discussion of students' research proposals, with particular attention to choice of topic and research design. Each student frames the structure of the essay, chooses research methods, begins the research, and presents and discusses a draft of the introductory section of the essay. Enrollment limited to Political Science majors writing a yearlong senior essay.

* **PLSC 491a, The Senior Essay** Andrea Aldrich

Each student writing a yearlong senior essay establishes a regular consultation schedule with a department member who, working from the prospectus prepared for PLSC 490, advises the student about preparation of the essay and changes to successive drafts. Enrollment limited to Political Science majors writing a yearlong senior essay.

Portuguese (PORT)

PORT 110a, Elementary Portuguese I Staff

Basic vocabulary and fundamentals of grammar through practice in speaking, reading, and writing, with stress on audio-lingual proficiency. Introduces Brazilian and Portuguese culture and civilization. L1 RP 1½ Course cr

PORT 130a, Intermediate Portuguese I Staff

Contemporary and colloquial usage of Portuguese in the spoken and written language of Brazil. Grammar review and writing practice. Readings on Brazilian society and history are used to build vocabulary. Exercises develop students' oral command of the language. L3 RP 1½ Course cr

PORT 150a, Advanced Practice: Brazilian Culture through Black Lives Giseli Tordin

This special topic#*Brazilian Culture through Black Lives*#offers an overview of the sociocultural diversity in Portuguese language through arts, street-arts, film, music, and theoretical and literary texts created by Afro-Brazilian authors. This course offers an opportunity to study the correlation between culture and language through Afro-Brazilian perspectives from authors including Lélia Gonzalez, Clementina de Jesus, Carolina Maria de Jesus, Conceição Evaristo, Machado de Assis, among others. Students can improve their Portuguese language skills by developing podcasts, clips, and digital essays using different technologies. After PORT 140 or equivalent. May be repeated for credit. L5, HU

* **PORT 353a / LITR 290a, Machado de Assis: Major Novels** Kenneth David Jackson

A study of the last five novels of Machado de Assis, featuring the author's world and stage of Rio de Janeiro, along with his irony and skepticism, satire, wit, narrative concision, social critiques, and encyclopedic assimilation of world literature. WR, HU

* **PORT 394a / LAST 394a / LITR 294a, World Cities and Narratives** Kenneth David Jackson

Study of world cities and selected narratives that describe, belong to, or represent them. Topics range from the rise of the urban novel in European capitals to the postcolonial

fictional worlds of major Portuguese, Brazilian, and Lusophone cities. Conducted in English. WR, HU TR

* **PORT 471a, Directed Reading or Directed Research** Kenneth David Jackson
Individual study for qualified students under the supervision of a faculty member selected by the student. Approval of the director of undergraduate studies is required.

* **PORT 491a, The Senior Essay** Kenneth David Jackson
A research project designed under a faculty director, resulting in a substantial paper written in Portuguese, submitted to the DUS and a second designated reader.

Psychology (PSYC)

PSYC 110a, Introduction to Psychology Samuel McDougale
A survey of major psychological approaches to the biological, cognitive, and social bases of behavior. SO

* **PSYC 125a / CHLD 125a / EDST 125a, Child Development** Ann Close and Carla Horwitz

This course is **first in a sequence** including Theory and Practice of Early Childhood Education (CHLD127/PSYCH 127/EDST 127) and Language Literacy and Play (CHLD 128/PSYCH 128/EDST 128). This course provides students a theoretical base in child development and behavior and tools to sensitively and carefully observe infants and young children. The seminar will consider aspects of cognitive, social, and emotional development. An assumption of this course is that it is not possible to understand children – their behavior and development – without understanding their families and culture and the relationships between children and parents. The course will give an overview of the major theories in the field, focusing on the complex interaction between the developing self and the environment, exploring current research and theory as well as practice. Students will have the opportunity to see how programs for young children use psychodynamic and interactional theories to inform the development of their philosophy and curriculum. Weekly Observations:-Total Time Commitment 3 hours per week. Students will do two separate weekly observations over the course of the semester. They will observe in a group setting for 2 hours each each week at a Yale affiliated child care center. Students will also arrange to do a weekly 1 hour observation (either in person or virtually) of a child under the age of 6. Students must make their own arrangements for these individual observations. If it is not possible to arrange a child to observe, please do not apply to take this course. For a portion of class meetings, the class will divide into small supervisory discussion groups. Priority given to juniors, seniors, Ed Study students. WR, SO

PSYC 130a / CGSC 110a, Introduction to Cognitive Science Staff
An introduction to the interdisciplinary study of how the mind works. Discussion of tools, theories, and assumptions from psychology, computer science, neuroscience, linguistics, and philosophy. SO

PSYC 140a / EDST 140a, Developmental Psychology Frank Keil
An introduction to research and theory on the development of perception, action, emotion, personality, language, and cognition from a cognitive science perspective. Focus on birth to adolescence in humans and other species. Prerequisite: PSYC 110. SO

PSYC 150a / EDST 160a, Social Psychology Maria Gendron

Theories, methodology, and applications of social psychology. Core topics include the self, social cognition/social perception, attitudes and persuasion, group processes, conformity, human conflict and aggression, prejudice, prosocial behavior, and emotion. SO

PSYC 160a / NSCI 160a, The Human Brain Robb Rutledge

Introduction to the neural bases of human psychological function, including social, cognitive, and affective processing. Preparation for more advanced courses in cognitive and social neuroscience. Topics include memory, reward processing, neuroeconomics, individual differences, emotion, social inferences, and clinical disorders. Neuroanatomy, neurophysiology, and neuropharmacology are also introduced. SC

PSYC 179a, Thinking Woo-Kyoung Ahn

A survey of psychological studies on thinking and reasoning, with discussion of ways to improve thinking skills. Topics include judgments and decision making, causal learning, logical reasoning, problem solving, creativity, intelligence, moral reasoning, and language and thought. SO

PSYC 180a / EDST 180a, Clinical Psychology Jutta Joermann

The major forms of psychopathology that appear in childhood and adult life. Topics include the symptomatology of mental disorders; their etiology from psychological, biological, and sociocultural perspectives; and issues pertaining to diagnosis and treatment. SO

PSYC 182a / CGSC 282a / PHIL 182a, Perspectives on Human Nature Staff

Comparison of philosophical and psychological perspectives on human nature. Nietzsche on morality, paired with contemporary work on the psychology of moral judgment; Marx on religion, paired with systematic research on the science of religious belief; Schopenhauer paired with social psychology on happiness. HU o Course cr

PSYC 200a, Statistics Staff

Measures of central tendency, variability, association, and the application of probability concepts in determining the significance of research findings. QR o Course cr

* **PSYC 230a / NSCI 240a, Research Methods in Human Neuroscience** Gregory McCarthy

Primary focus on structural, functional, and diffusion magnetic resonance imaging, with a secondary emphasis upon brain stimulation, electroencephalography, and evoked potentials. Students learn the fundamentals of each method and the experimental designs for which they are most applicable. Prerequisites: PSYC 160/NSCI 160 and a course in statistics, or permission of instructor. SC

* **PSYC 235a, Research Methods, Writing Intensive** Yarrow Dunham

Introduction to general principles and strategies of psychological research. Topics include generating and testing hypotheses, laboratory and field experiments, scale construction, sampling, archival methods, case studies, ethics and politics of research, and Internet and cross-cultural methods. Hands-on research experience in laboratories. Prerequisite: PSYC 200 or S&DS 103. WR, SO

*** PSYC 260a / NSCI 260a, Research Methods in Psychopathology: Psychotic Disorders** Tyrone Cannon

Methods of research in psychopathology. Focus on longitudinal designs, high-risk sampling approaches, prediction of outcomes, and modeling change over time. Students design and perform analyses of clinical, cognitive, genetic, neuroimaging and other kinds of measures as predictors of psychosis and related outcomes, using existing datasets supplied by the instructor. SO

PSYC 261a / CGSC 274a / NSCI 361a, Algorithms of the Mind Ilker Yildirim
This course introduces computational theories of psychological processes, with a pedagogical focus on perception and high-level cognition. Each week students learn about new computational methods grounded in neurocognitive phenomena. Lectures introduce these topics conceptually; lab sections provide hands-on instruction with programming assignments and review of mathematical concepts. Lectures cover a range of computational methods sampling across the fields of computational statistics, artificial intelligence and machine learning, including probabilistic programming, neural networks, and differentiable programming. Students must have a programming background, ideally in a high-level programming language such as Python, Julia or Matlab. Students must also have college-level calculus. The course will substantially use Julia and Python. QR, SC, SO o Course cr

PSYC 303a / NSCI 355a, Social Neuroscience Stephanie Lazzaro

Exploration of the psychological and neural mechanisms that enable the formation, maintenance, and dissolution of social relationships. Topics include the neuroscience of how we form impressions and decide whether to instigate relationships with others; how we build relationships through trust, cooperation, attachment, conflict, and reconciliation; and group-level processes including intergroup bias, moral judgment, and decision making. Prerequisite: PSYC 110 or permission of instructor. SC

*** PSYC 305a / CHLD 228a / EDST 228a, Contemporary Topics in Social and Emotional Learning** Christina Cipriano

While our nation's youth are increasingly more anxious and disconnected than ever before, social and emotional learning, or SEL, is being politicized by arguments without empirical evidence. The reality is that due in part to its interdisciplinary origins, and in part to its quick uptake, what SEL is, why it matters, and who it benefits, has garnered significant attention since its inception. Key questions and discourse over the past three decades include if SEL skills are: another name for personality, soft skills, 21st century skills, or emotional intelligence, are SEL skills stand-alone or do they need to be taught together and in sequence, for how long does the intervention need to last to be effective, how do you assess SEL, are SEL skills culturally responsive and universally applicable, and can SEL promote the conditions for education equity? In this seminar, students unpack these key questions and challenge and evolve the current discourse through seminal and contemporary readings, writing, and artifact analyses. Students are provided with the opportunity to engage critically with the largest data set amassed to date of the contemporary evidence for SEL. Prerequisite: CHLD 125, or PSYC 125, or EDST 125.

*** PSYC 312a / ER&M 412a, Native American Mental Health** Christopher Cutter and Mark Beitel

Issues of health policy, research, and service delivery in Native American communities, with a focus on historical antecedents that shape health outcomes and social policy

for indigenous communities. Urgent problems in health and wellness, with special attention to Native American mental health. The roles of the Indian Health Service, state and local agencies, and tribal health centers; comparison of Native American and European American conceptions of health and illness. SO

PSYC 315a / CGSC 315a, The Modern Unconscious John Bargh

The notion of the unconscious mind traced from the early 1800s through Freud to present-day cognitive science, with a focus on the past thirty years. The power and function of the unconscious as a pervasive part of normal everyday human functioning. Readings mainly from cognitive and social cognitive psychology but also philosophy of mind and evolutionary biology. SO

PSYC 317a / EDST 237a / LING 217a, Language and Mind Maria Pinango

The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use. SO RP o Course cr

PSYC 318a / LING 220a, Phonetics I Jason Shaw

Each spoken language composes words using a relatively small number of speech sounds, a subset of the much larger set of possible human speech sounds. This course introduces tools to describe the complete set of speech sounds found in the world's spoken languages. It covers the articulatory organs involved in speech production and the acoustic structure of the resulting sounds. Students learn how to transcribe sounds using the International Phonetic Alphabet, including different varieties of English and languages around the world. The course also introduces sociophonetics, how variation in sound patterns can convey social meaning within a community, speech perception, and sound change. SO o Course cr

PSYC 342a / WGSS 315a, Psychology of Gender Tariq Khan

This course explores the historical relationship between the "mind sciences" and dominant gender notions, ideologies, and norms. Students will critically examine the historical role that psychology and related fields have played in reinforcing and perpetuating things such as gender hierarchy, the gender binary, and the cis-hetero-patriarchal nuclear family unit, among other things. Students will be introduced to works that illuminate the larger underlying social, political, and economic systems, institutions, and historical processes that are co-constitutive with these gender hierarchies, ideologies, and norms, with an emphasis on the role of psychology and related fields. Students will also learn about psychologists and related scientists and scholars whose work has challenged those systems and institutions toward a more emancipatory vision for the role of psychology in society, and how their work has shaped the field. None SO

* **PSYC 422b / CGSC 426b / EP&E 490b / PHIL 426b, The Cognitive Science of Morality** Joshua Knobe

Introduction to the emerging field of moral cognition. Focus on questions about the philosophical significance of psychological findings. Topics include the role of emotion in moral judgment; the significance of character traits in virtue ethics and personality

psychology; the reliability of intuitions and the psychological processes that underlie them. HU

*** PSYC 426a, Foundations of Logical Thought in Cognitive Development** Nicolò Cesana-Arlotti

This is a seminar surveying the cognitive, developmental, and evolutionary origins of our capacities to use logical representations and deductive inferences to learn, form predictions, and make decisions. The seminar explores the growing field of research that investigates the foundations of logical thought in language acquisition, in preverbal infants' cognition, and in the mind of our close and distant relatives in the animal world. There are no formal prerequisites for this course, but this course is designed for advanced students who have already completed introductory psychology coursework (PSYC 110, Introduction to Psychology) SO

PSYC 429a, Psychology of Prejudice, Stereotyping, and Discrimination Jennifer Richeson

Examination of the social psychology of stereotyping, prejudice, and discrimination. Specifically, the processes of mind and brain that give rise to both positive and negative relations between members of different societal groups. PSYC 110, PSYC 200 (or equivalent), PSYC 235 (or equivalent), PSYC 150 (recommended)

*** PSYC 436a / EDST 436a, Translating Developmental Science into Educational Practice** Julia Leonard

Recent insights from developmental psychology and neuroscience on synaptic plasticity, critical periods, metacognition, and enriched environments are ripe for application to improve children's lives. Yet sometimes the translation of research into practice is a bridge too far. In this course, we discuss cutting-edge research in developmental cognitive and neural sciences and examine how these findings can inform policy and educational practice. SO

*** PSYC 449a / NSCI 449a, Neuroscience of Social Interaction** Steve Chang

This seminar covers influential studies that inform how the brain enables complex social interactions from the perspectives of neural mechanisms. Students thoroughly read selected original research papers in the field of social neuroscience across several animal species and multiple modern neuroscience methodologies. In class, the instructor and students work together to discuss these studies in depth. Focused topics include neural mechanisms behind brain-to-brain coupling, empathy, prosocial decision-making, oxytocin effects, and social dysfunction. Prerequisite: PSYC 160 or permission from the instructor. SC

*** PSYC 457a, Communicating Psychological Science** Laurie Santos

Examination of best practices in the communication of psychology. The course explores strategies for communicating psychological findings to varying audiences (e.g., policy makers, popular media) and in varying formats (op-eds, long-form articles, podcasts, short videos) with the goal of gaining the skill and confidence necessary to give psychological science its broadest possible reach. Students choose specific psychological topics based to cover in their communication projects and explore current challenges within psychology communication (e.g., the ethics of psychology communication, exploring the issue of replication in the field of psychological science). Readings include examples of different forms of psychology communication along with the published empirical papers associated with those readings. Seminar discussions

include a workshop component where students provide feedback on other students' creative writing/communication projects. Graded assignments include both group-based creative projects (short videos and podcast clips) and individual written work, including weekly directed writing exercises. Prerequisites: PSYC 110, PSYC 200 (or equivalent), and at least two other upper-level courses in PSYC. SO

*** PSYC 493a, Directed Research** Yarrow Dunham

Empirical research projects or literature review. A student must be sponsored by a faculty member, who sets the requirements and supervises the student's progress. To register, the student must download a tutorial form from <http://psychology.yale.edu/undergraduate/undergraduate-major-forms>, complete it with the adviser, and submit it to the director of undergraduate studies by the deadline listed on the form. The normal minimum requirement is a written report of the completed research or literature review, but individual faculty members may set alternative equivalent requirements. May be elected for one or two terms. May not be used for the Psychology senior essay requirement.

*** PSYC 495a, Research Topics** Yarrow Dunham

Empirical research project or literature review. A student must be sponsored by a faculty member, who sets the requirements and supervises the student's progress. To register, the student must download a tutorial form from <http://psychology.yale.edu/undergraduate/undergraduate-major-forms>, complete it with the adviser, and submit it to the director of undergraduate studies by the date indicated on the form. The normal minimum requirement is a written report of the completed research or literature review, but individual faculty members may set alternative equivalent requirements. May be elected for one or two terms. May not be used for the Psychology senior essay requirement. ½ Course cr

*** PSYC 499a, Senior Essay** Yarrow Dunham

Independent senior research project (either empirical research or literature review), conducted under the guidance of a faculty adviser who sets the requirements and supervises the research. To register, the student must download a tutorial form from <http://psychology.yale.edu/undergraduate/undergraduate-major-forms>, complete it with the adviser, and submit it by the deadline indicated on the form. The normal minimum requirement is a written report of the completed research or literature review, but individual faculty members may set alternative equivalent requirements. A paper of 5,000 words or more meets the writing needed for the senior requirement. To be considered for Distinction in the Major, the paper should be submitted at least one week before the last day of classes and will be graded by the adviser and a second reader assigned by the DUS.

Punjabi (PNJB)

*** PNJB 110a, Elementary Punjabi I** Staff

Introduction to the Punjabi language in its cultural context. Development of fundamental speaking, listening, reading, and writing skills through the application of communicative methods and the use of authentic learning materials. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail

minjin.hashbat@yale.edu for more information. Credit only on completion of PNJB 120. L1 RP 1½ Course cr

*** PNJB 120b, Elementary Punjabi II** Staff

Continuation of PNJB 110. Further development of speaking, listening, reading, and writing skills through the application of communicative methods and the use of authentic learning materials. Prerequisite: PNJB 110 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 RP 1½ Course cr

*** PNJB 130a, Intermediate Punjabi I** Staff

The important target of this course is to develop basic Punjabi Language skills (reading, writing, listening and speaking). This is approached through the theme-based syllabus, discussion in small groups and paired activities on the cultural background of Punjab or Punjabi culture. As well as, the listening and speaking skills would be developed by using the media such as educational material, Punjabi movies, music and computer lab sessions. The usage of the textbooks would lead us to learn grammatical rules of the Punjabi language. The students are approached individually, since the class typically consists of students in the various backgrounds. Prerequisite: PNJB 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

*** PNJB 140b, Intermediate Punjabi II** Staff

The important target of this course is to develop basic Punjabi Language skills (reading, writing, listening and speaking). This is approached through the theme-based syllabus, discussion in small groups and paired activities on the cultural background of Punjab or Punjabi culture. As well as, the listening and speaking skills would be developed by using the media such as educational material, Punjabi movies, music and computer lab sessions. The usage of the textbooks would lead us to learn grammatical rules of the Punjabi language. The students are approached individually, since the class typically consists of students in the various backgrounds. Prerequisite: PNJB 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

Religious Studies (RLST)

*** RLST 022a / ENGL 031a, Religion and Science Fiction** Maria Doerfler

Survey of contemporary science fiction with attention to its use and presentation of religious thought and practice. Focus on the ways in which different religious frameworks inform the literary imagination of this genre, and how science fiction in turn creates religious systems in both literature and society. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **RLST 102b / EAST 390b, Atheism and Buddhism** Hwansoo Kim

A critical examination of atheism and religions (Buddhism), with a focus on intellectual, religious, philosophical, and scientific debates about God, the origin of the universe, morality, evolution, neuroscience, happiness, enlightenment, the afterlife, and karma. Readings selected from philosophical, scientific, and religious writings. Authors include some of the following: Charles Darwin, Bertrand Russell, Christopher Hitchens, Richard Dawkins, Deepak Chopra, Sam Harris, Owen Flanagan, Stephen Batchelor, and the Dalai Lama. HU

RLST 115b / AMST 116b, How to Build an American Religion Kathryn Lofton

How communities can be organized through code, charisma, ritual, and cosmology. Topics include strategies for concretizing utopia and establishing communal principles, expanding audiences, and specifying creed. This course serves as an introduction to religion through theoretical readings and specific examples drawn from the transnational American scene, past and present. Discussion of particular leaders, sects, practices, and media will offer insights into how ideas organize societies and individuals establish themselves as icons. Students adapt strategies taught in the course in order to practice their own capacity to foster social movements, develop and critique brands, and consider the relationship between religion, politics, and economy. HU o Course cr

* **RLST 121b / EALL 296b / EAST 391b, Religion and Culture in Korea** Hwansoo Kim

Introduction to Shamanism, Buddhism, Confucianism, Daoism, Christianity, and new religions in Korea from ancient times to the present. Examination of religious traditions in close relationships with social, economic, political, and cultural environments in Korean society. Examination of religious tensions, philosophical arguments, and ethical issues that indigenous and foreign religions in Korea have engaged throughout history to maximize their influence in Korean society. HU

RLST 127a / PHIL 118a / SAST 261a, Buddhist Thought: The Foundations Staff

This class introduces the fundamentals of Buddhist thought, focusing on the foundational doctrinal, philosophical, and ethical ideas that have animated the Buddhist tradition from its earliest days in India 2500 years ago down to the present, in places such as Tibet, China, and Japan. Though there will be occasional discussion of the social and practical contexts of the Buddhist religion, the primary focus of this course lies on how traditional Buddhist thinkers conceptualize the universe, think about the nature of human beings, and propose that people should live their lives. Our main objects of inquiry are therefore the foundational Buddhist ideas, and the classic texts in which those ideas are put forth and defended, that are broadly speaking shared by all traditions of Buddhism. In the later part of the course, we take up some of these issues in the context of specific, regional forms of Buddhism, and watch some films that provide glimpses of Buddhist religious life on the ground. HU o Course cr

RLST 148a / ER&M 219a / HIST 219a / JDST 200a / MMES 149a, Jews and the World: From the Bible through Early Modern Times Ivan Marcus

A broad introduction to the history of the Jews from biblical beginnings until the European Reformation and the Ottoman Empire. Focus on the formative period of classical rabbinic Judaism and on the symbiotic relationships among Jews, Christians, and Muslims. Jewish society and culture in its biblical, rabbinic, and medieval settings.

Counts toward either European or non-Western distributional credit within the History major, upon application to the director of undergraduate studies. HU RP o Course cr

*** RLST 152b, Writing Science and Religion: Interpreting Human Nature** Staff

This intensive writing seminar is an introduction to analysis of “human nature” as the product of a history of scientific and religious thought in the colonial West. We interrogate the ways that different layers of interpretation shape our ideas of human nature—from the historically situated biological paradigms that give us our vision of nature itself, to the ways analysts have theorized the social worlds that create and evoke our “human nature.” This course is not a history of the concept of human nature, but rather a seminar in which students learn to analyze how the history of science and the history of thought have worked together to shape claims about the human’s most essential nature and develop their own positions on how scientific and humanistic thought work together. We ask: In response to which questions does the concept of the human’s nature arise? Why do science, religion, and philosophy feel like good places to look for answers? How do scholars’ interpretive methods shape the concepts of history, data, mind, and freedom that arise out of their studies of human nature? Readings may include: Ludwik Fleck, Sylvia Wynter, Kim TallBear, Blaise Pascal, Ruha Benjamin, Lorraine Daston. WR, HU

RLST 160a / HIST 280a / ITAL 315a, The Catholic Intellectual Tradition Staff

Introductory survey of the interaction between Catholicism and Western culture from the first century to the present, with a focus on pivotal moments and crucial developments that defined both traditions. Key beliefs, rites, and customs of the Roman Catholic Church, and the ways in which they have found expression; interaction between Catholics and the institution of the Church; Catholicism in its cultural and sociopolitical matrices. Close reading of primary sources. HU o Course cr

*** RLST 162a / EP&E 223a / HUMS 183a, Tradition and Modernity: Ethics, Religion, Politics, Law, & Culture** Andrew Forsyth

This seminar is about “tradition”—what it is and what it does—and how reflecting on tradition can help us better understand ethics, religion, politics, law, and culture. We ask: for whom and in what ways (if any) are the beliefs and practices transmitted from one generation to another persuasive or even authoritative? And how do appeals to tradition work today? We traverse a series of cases studies in different domains. Looking to ethics, we ask if rational argument means rejecting or inhabiting tradition. Next, we look at religions *as* traditions and traditions as one source of authority *within* religions. We consider appeals to tradition in conservative and progressive politics. And how the law uses decisions on past events to guide present actions. Finally, we turn to tradition in civic and popular culture with attention to “invented traditions,” the May 2023 British Coronation, and Beyoncé’s 2019 concert film “Homecoming.” HU

RLST 165a / HUMS 138a / LITR 428a / MMES 138a / NELC 131a, The Quran Travis Zadeh

Introduction to the study of the Quran. Topics include: the literary, historical, and theological reception of the Quran; its collection and redaction; the scriptural milieu of late antiquity; education and religious authority; ritual performance and calligraphic expression; the diversity of Muslim exegesis. HU

*** RLST 175a / EAST 431a, North Korea and Religion** Hwansoo Kim

Ever since the establishment of the Democratic People's Republic of Korea (DPRK) in 1948 and the Korean War (1950–1953), North Korea has been depicted by the media as a reclusive, oppressive, and military country, its leaders as the worst dictators, and its people as brainwashed, tortured, and starving to death. The still ongoing Cold War discourse, intensified by the North Korea's recent secret nuclear weapons program, furthers these negative images, and outsiders have passively internalized these images. However, these simplistic characterizations prevent one from gaining a balanced understanding of and insight into North Korea and its people on the ground. Topics other than political, military, and security issues are rarely given attention. On the whole, even though North Korea's land area is larger than South Korea and its population of 25 million accounts for a third of all Koreans, North Korea has been neglected in the scholarly discussion of Korean culture. This class tries to make sense of North Korea in a more comprehensive way by integrating the political and economic with social, cultural, and religious dimensions. In order to accomplish this objective, students examine leadership, religious (especially cultic) aspects of the North Korean Juche ideology, the daily lives of its citizens, religious traditions, the Korean War, nuclear development and missiles, North Korean defectors and refugees, human rights, Christian missionary organizations, and unification, among others. Throughout, the course places North Korean issues in the East Asian and global context. The course draws upon recent scholarly books, articles, journals, interviews with North Korean defectors, travelogues, media publications, and visual materials. so

RLST 180b / HIST 342b / SAST 280b, Mughal India, 1500–1800 Supriya Gandhi
Exploration of religion and the state in Mughal India, focusing on the period between 1500–1800. Topics include sacred sovereignty, orthodoxy, Sufism, vernacular literary and religious cultures, and the early colonial encounter. HU o Course cr

*** RLST 183a / SAST 366a, The Gita: Humanities at World's End** Sonam Kachru
An examination of the Bhagavad Gita in its historical and religious context. Exploration of the major interpretations of this important religious text. All readings in translation.
HU TR

RLST 186b / CGSC 186b / PHIL 113b / SAST 270b, Fear, Suffering, Anger, Love: Buddhist Philosophy of Mind Sonam Kachru

This course introduces students to classical Indian Buddhist philosophy of mind and the reasons why Buddhists pursued it— "the reinvention of ourselves," or the pursuit of the transformation of persons from unhealthy to healthy ways of being minded. Class materials are drawn from categories and concerns found in theoretical and practical manuals from roughly the first to the fifth centuries C.E., but the topics are salient, including: What is the difference between mind and consciousness? Is there an unconscious? How does one model mental actions, such as attention or categorization? Are our minds structured by primal fear? Or anger? Do we ever have reason to be angry? What is cognitive control? Why do minds wander? Should mental dynamics be merely observed or attenuated or sculpted in some other way? What, if anything, is peace of mind? HU

*** RLST 201a / HIST 232Ja / HUMS 443a / JDST 270a / MMES 342a, Medieval Jews, Christians, and Muslims In Conversation** Ivan Marcus

How members of Jewish, Christian, and Muslim communities thought of and interacted with members of the other two cultures during the Middle Ages. Cultural

grids and expectations each imposed on the other; the rhetoric of otherness—humans or devils, purity or impurity, and animal imagery; and models of religious community and power in dealing with the other when confronted with cultural differences. Counts toward either European or Middle Eastern distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU RP

RLST 202b / HIST 345b / JDST 265b / MMES 148b, Jews in Muslim Lands from the Seventh to the Sixteenth Centuries Ivan Marcus

Jewish culture and society in Muslim lands from the time of the Prophet Muhammad to that of Suleiman the Magnificent. Topics include Islam and Judaism; Jerusalem as a holy site; rabbinic leadership and literature in Baghdad; Jewish courtiers, poets, and philosophers in Muslim Spain; and the Jews in the Ottoman Empire. HU o Course cr

*** RLST 230a / SAST 358a, Yoga in South Asia and Beyond** Supriya Gandhi

The history of yoga practice and thought from the earliest textual discussions of yoga until the present day. Topics include the body, cosmology, cross-cultural interactions, colonialism, and orientalism. This course is not open to students previously enrolled in RLST 018 or SAST 058. HU

*** RLST 231b / HIST 226Jb / JDST 370b, How the West Became Antisemitic: Jews and the Formation of Europe 800-1500** Ivan Marcus

Students study how Jews and Christians interacted on a daily basis as medieval Europe became more restrictive and antisemitic, a contributing factor to the Holocaust. In this writing seminar, students discuss a variety of primary sources in class#laws, stories, chronicles, images#while researching and writing their own seminar paper structured by sessions on topics, bibliographies, and outlines. WR, HU

RLST 234a / HIST 234Ja, History of the Supernatural from Antiquity to Modernity Carlos Eire

This survey course aims to provide an introduction to ancient, medieval, and early modern Western beliefs in supernatural forces, as manifested in saints, mystics, demoniacs, ghosts, witches, relics, miracles, magic, charms, folk traditions, fantastic creatures and sacred places. Using a wide range of primary sources and various historical methodologies, our aim is to better understand how beliefs and worldviews develop and change and the ways in which they shape and determine human behavior. This course is not open to students previously enrolled in HIST 299. HU

*** RLST 246a, Beyond the Typology: Christian-Buddhist Engagement in Southeast Asia** David Moe

Southeast Asia is one of the most religiously and ethnically diverse regions in the world, yet this region and its religions do not receive sufficient attention. This region is home to three world religions—majority Christianity is mainly found in the Philippines and East Timor; Theravada Buddhism in Myanmar, Thailand, Laos, and Cambodia; Mahayana Buddhism in Vietnam, Malaysia, and Singapore.; and Islam in Indonesia, Malaysia, and Brunei. This course pays particular attention to Christian-Buddhist engagement from the colonial past to the post-colonial present. We consider questions such as, "How did Western missionaries make contact with Buddhists in a colonial period?"; "What is the result of the colonial legacy of foreign missionaries?"; and "How do local Christians and Buddhists understand their ethnic identity and religious otherness in a post-colonial period?"; Using thematic and comparative approaches, this course will introduce students to Christian-Buddhist origins, movements, teachings,

practices, social and spiritual involvements. We fill in some gaps by balancing the nuanced approaches to religious doctrines and lived experiences. We also examine the problem of a misleading typology—exclusivism, inclusivism, and pluralism—and discern how the interreligious ethics of compassion should serve as a fresh way for a Christian-Buddhist’s hospitable engagement and for building a multicultural nation in contemporary Southeast Asia. HU

* **RLST 258a, Black Church Burning** Todne Thomas

Black churches are vital institutions that have contributed to the spiritual and physical survival of African-descended communities in North America. Nonetheless, the very centrality of black churches to black survival, refuge, development, and flourishing has made them targets for white supremacist and other modalities of violence. This course compels us to turn our attention to the troubling archive of anti-black religious violence manifested in black church bombings, burnings, and shootings in the United States from the antebellum period to the present. More than a survey of the ravages of anti-black religious violence, this course also challenges us to consider the spiritual, experiential, and prophetic significance of fire within the Black Christian tradition. *Black Church Burning*, then, references the spiritual, symbolic, and material destruction of fire and how it is wielded by black Christian practitioners in relation to regenerative rebukes and potentialities. Course participants survey foundational texts about the significance of African American churches. They also contemplate the offerings and shortcomings of historical, social scientific, theological, and artistic depictions of black church arson and black Christian pneumatic concepts, as well as their moral and material implications. HU, SO

* **RLST 277a / PHIL 202a, Existentialism** Noreen Khawaja

Introduction to key problems in European existentialism. Existentialism considered not as a unified movement, but as a tradition of interlocking ideas about human freedom woven through the philosophy, religious thought, art, and political theory of late modern Europe. Readings from Kierkegaard, Nietzsche, Heidegger, Fanon, Sartre, de Beauvoir, Césaire. HU

* **RLST 284a / JDST 129a, Jewish and Christian Bodies: Ritual, Law, Theory** Shraga Bick

This course employs a variety of methodological tools to explore the place and meaning of the body in Judaism and Christianity, by examining several central issues related to the body, such as observing the commandment; Martyrdom; Illness and death; sexuality and gender; and the performance of rituals. HU

RLST 290a / MMES 290a / PLSC 435a, Islam Today: Modern Islamic Thought Frank Griffel

Introduction to Islamic thought after 1800, including some historical background. The development of Islamic modernism in the 19th century and of Islamic fundamentalism in the 20th. Islam as a reactive force to Western colonialism; the ideals of Shari’a, Islam as a political ideology, and the emergence of Jihad movements. Different kinds of Salafism, Islamic liberalism, and feminism as well as the revival of Islam’s intellectual heritage. HU o Course cr

* **RLST 300b / HSHM 461b / HUMS 332b, The New Age** Noreen Khawaja and Joanna Radin

Seminar on the history and thought of the "new age"—a broad field of interactions between science and spirituality in the colonial West as well as a projected epoch of interconnection in which their antagonism is overcome. We take up the materials of the new age in historical perspective—from theosophy to psychoanalysis, astrology to aesthetics. We also consider the contemporary legacies of new age movements in culture and counterculture. Readings may include Aimé Césaire, Helena Blavatsky, CG Jung, Projit Mukherji, MC Richards, Geary Hobson, Aldous Huxley, Annie Besant, Aisha Beliso-De Jesús.

* **RLST 324a / HIST 268Ja / JDST 351a / PLSC 466a, The Global Right: From the French Revolution to the American Insurrection** Elli Stern

This seminar explores the history of right-wing political thought from the late eighteenth century to the present, with an emphasis on the role played by religious and pagan traditions. This course seeks to answer the question, what constitutes the right? What are the central philosophical, religious, and pagan, principles of those groups associated with this designation? How have the core ideas of the right changed over time? We do this by examining primary tracts written by theologians, political philosophers, and social theorists as well as secondary literature written by scholars interrogating movements associated with the right in America, Europe, Middle East and Asia. Though touching on specific national political parties, institutions, and think tanks, its focus is on mapping the intellectual overlap and differences between various right-wing ideologies. While the course is limited to the modern period, it adopts a global perspective to better understand the full scope of right-wing politics. HU, SO

RLST 342b / AMST 234b / ER&M 243b / HIST 188b, Spiritual But Not Religious Staff

Study of the historical and contemporary “unchurching” trends in American religious life in a comparative perspective and across different scales of analysis in order to think about the relationship between spirituality, formal religion, secular psychology and the self-help industry. HU, SO o Course cr

* **RLST 343b / EAST 401b, Tibetan Buddhism** Staff

This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet. HU

RLST 347a / HIST 240a / SOCY 331a / WGSS 291a, Sexual Minorities from Plato to the Enlightenment Staff

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary

historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham.

HU o Course cr

*** RLST 366a / EAST 400a, Religion and Politics in China, Xinjiang, and Tibet** Staff

This course explores the religious and political interactions among the Chinese, Tibetans, Mongolians, and Muslims living in today's northwest China from the fourteenth to the twentieth century. Focusing on parallel spatial arrangements and historical narratives of these ethnoculturally diverse peoples, the first part of this course investigates the evolving political systems, religious institutions, and social structures in China, Xinjiang and Tibet. Shifting from the center-periphery perspective to the bottom-up perspective, the second part examines major issues associated with interethnic relations. We critically read both primary and secondary sources. Key themes include Chinese imperialism and colonialism, Tibetan Buddhist expansion, Mongolian conquest, Islamization and Muslim resettlement, transregional trade, frontier militarization, ethnic violence, and inter-ethnocultural accommodation. HU

*** RLST 410b / EAST 405b / RLST 235, Buddhism and Violence** Staff

This course focuses on Buddhism and violence in the modern world, with a particular emphasis on Korean Buddhism. Buddhism is often perceived to be a pacifist religion; however, all across the modern Buddhist world, from Japanese Zen Buddhists during World War II, to Vietnamese Buddhists during the Vietnam War, to Buddhists in the contemporary United States, Buddhists have been complicit in and even supported state-sanctioned violence. Can Buddhism be deemed less (or more) violent than other major religions? We cover introductory topics on Buddhism, going back in history to see the fundamental philosophical debates on violence and killing in the tradition. Using Korean Buddhism as a case study, we explore in what ways, if any, these ancient debates relate to the modern world. HU

*** RLST 420b / HIST 333b / NELC 320b, Introduction to Syriac Christianity** Maria Doerfler

This seminar aims to introduce students to the literary, historical, and theological tradition of Syriac Christianity and the developing field of Syriac Christian studies. In this vein, students encounter a number of the tradition's key authors; learn to locate its development in the context of different imperial cultures and religious interlocutors, including Judaism and Islam; and explore topics at the vanguard of current scholarship, including distinctive approaches to asceticism, ritual, and historiography. In addition to weekly meetings, the seminar further requires attendance for three special sessions: a visit to the Beinecke Rare Books & Manuscripts Library and its considerable Syriac manuscript holdings; a visit to the Yale University Art Gallery and its collection of relevant artefacts and coins; and an introduction to the use of digital humanities in Syriac Studies through the Yale Digital Dura-Europos Archive (YDEA). Permission of Instructor is required. HU

*** RLST 428a / HUMS 397a / PHIL 493a, Neighbors and Others** Nancy Levene

This course is an interdisciplinary investigation of concepts and stories of family, community, borders, ethics, love, and antagonism. Otherwise put, it concerns the struggles of life with others – the logic, art, and psychology of those struggles. The

starting point is a complex of ideas at the center of religions, which are given to differentiating "us" from "them" while also identifying values such as the love of the neighbor that are to override all differences. But religion is only one avenue into the motif of the neighbor, a fraught term of both proximity and distance, a contested term and practice trailing in its wake lovers, enemies, kin, gods, and strangers. Who is my neighbor? What is this to ask and what does the question ask of us? Course material includes philosophy, literature, psychology, and film. WR, HU

*** RLST 430b / PHIL 429b / SAST 470b, Indian Philosophy in Sanskrit Literature**
Aleksandar Uskokov

In this course we focus on issues of philosophical significance in Sanskrit literature of "non-standard" philosophical genres, i.e., other than the treatise and the commentary. Specifically we read from canonical Hindu texts such as the Upani#ads, Mahābhārata, Rāmāya#a, Bhāgavata Purā#a, Bhagavad-gītā, and Yogavāsi##ha; the classical genres of drama and praise poetry; and hagiographical literature, all in English translation. Attention is paid not only to substance but also form. The selection of philosophical problems includes philosophy of mind and personal identity; allegory; the ethics of non-violence; philosophy, politics, and religious pluralism; the highest good; theodicy; philosophical debate; etc. HU

*** RLST 431a / HSAR 350a / HUMS 425a / LITR 399a, Reality and the Realistic**
Noreen Khawaja and Joanna Fiduccia

A multidisciplinary exploration of the concept of reality in Euro-American culture. What do we mean when we say something is "real" or "realistic?" From what is it being differentiated—the imaginary, the surreal, the speculative? Can we approach a meaningful concept of the unreal? This course wagers that representational norms do not simply reflect existing notions of reality; they also shape our idea of reality itself. We study the dynamics of realism and its counterparts across a range of examples from modern art, literature, philosophy, and religion. Readings may include: Aimé Cesaire, Mircea Eliade, Karen Barad, Gustave Flaubert, Sigmund Freud, Renee Gladman, Saidiya Hartman, Arthur Schopenhauer. Our goal is to understand how practices of representation reveal something about our understanding of reality, shedding light on the ways we use this most basic, yet most elusive concept. HU

*** RLST 488a and RLST 489b, Individual Tutorial** Staff

For students who wish, under faculty supervision, to investigate an area in religious studies not covered by regular departmental offerings. The course may be used for research or for directed reading. A long essay or several short ones are required. To apply, students should present a prospectus with bibliography of work they propose to undertake to the director of undergraduate studies together with a letter of support from the faculty member who will direct the work.

*** RLST 490b, Religion and Society** Maria Doerfler

Seminar on religion and society. Topics covered vary by year, but may include one or more of the following: ritual and its social functions, different concepts of social life, the operation of violence in social relationships, religion as both champion and critic of society, and theoretical models of religion and society.

*** RLST 491a and RLST 492b, The Senior Essay** Staff

Students writing their senior essays meet periodically in the fall and weekly in the spring for a colloquium directed by the director of undergraduate studies. The essay,

written under the supervision of a member of the department, should be a substantial paper between 12,500 and 15,000 words.

Romanian (ROMN)

Russian (RUSS)

RUSS 110a, First-Year Russian I Julia Titus

A video-based course designed to develop all four language skills: reading, writing, speaking, and listening comprehension. Use of dialogues, games, and role playing. In addition to readings in the textbook, students read original short stories and learn Russian songs and poems. Oral and written examinations. L1 RP 1½ Course cr

RUSS 120b, First-Year Russian II Julia Titus

Continuation of RUSS 110. After RUSS 110 or equivalent. L2 RP 1½ Course cr

RUSS 125a, Intensive Elementary Russian Constantine Muravnik

An intensive course that covers in one term the material taught in RUSS 110 and 120. For students of superior linguistic ability. Study of Russian grammar; practice in conversation, reading, and composition. Recommended for prospective majors in Russian and in Russian and East European Studies. L1, L2 RP 2 Course cr

RUSS 130a, Second-Year Russian I Irina Dolgova

A course to improve functional competence in all four language skills (speaking, writing, reading, and listening comprehension). Audio activities, for use both in the classroom and independently, are designed to help students improve their listening comprehension skills and pronunciation. Lexical and grammatical materials are thematically based. After RUSS 120 or equivalent. L3 RP 1½ Course cr

RUSS 140b, Second-Year Russian II Staff

Continuation of RUSS 130. After RUSS 130 or equivalent. L4 RP 1½ Course cr

RUSS 145b, Intensive Intermediate Russian Constantine Muravnik

A continuation of RUSS 125 that covers in one term the material taught in RUSS 130 and 140. For students of superior linguistic ability. Prerequisite: RUSS 125. L3, L4 RP 2 Course cr

RUSS 150a, Third-Year Russian I Constantine Muravnik

Intensive practice in conversation and composition accompanied by review and refinement of grammar. Readings from nineteenth- and twentieth-century literature, selected readings in Russian history and current events, and videotapes and films are used as the basis of structured conversation, composition, and grammatical exercises. Oral and written examinations. Audiovisual work in the Center for Language Study required. After RUSS 140 or 145 or equivalent. L5 RP 1½ Course cr

RUSS 151b, Third-Year Russian II Constantine Muravnik

Continuation of RUSS 150. After RUSS 150 or equivalent. L5 RP 1½ Course cr

* **RUSS 152a, Mastering Oral Communication in Russian** Irina Dolgova

The goal of this course is to improve students' communicative competence in Russian through a focus on their pronunciation and listening skills within a variety of topics such as academic life, art, music, finance, technology etc. By the end of the course students are able to communicate their ideas, express agreement and disagreement,

and persuade and settle for a compromise within broad cultural and social topics in a more intelligible and natural way in Russian. Prerequisite: L5 students and instructor's permission. L5

RUSS 160a, Fourth-Year Russian I Anastasia Selemeneva

Discussion topics include Russian culture, literature, and self-identity; the old and new capitals of Russia, the cultural impact of the Russian Orthodox Church, and Russia at war. Readings from mass media, textbooks, and classic and modern literature. Use of video materials. After RUSS 151 or equivalent. L5

RUSS 161b, Fourth-Year Russian II Anastasia Selemeneva

Continuation of RUSS 160. After RUSS 160 or equivalent. L5

*** RUSS 172a, Russian History through Literature and Film** Irina Dolgova

Study of important events in Russian history, from the medieval times to the present, through authentic reading materials in various genres and through feature and documentary films. The course is designed to advance students' speaking proficiency in Russian and to develop their reading, listening, and writing skills. Texts include Russian fairy tales; fragments from *The Primary Chronicles*; A. Tolstoy's *Peter I*; D. Merezhkovsky's *Antichrist*; N. Eidelman's *Decembrists*; P. Chaadaev's *Philosophical Letters*; N. Leskov's *Enchanted Wanderer* (fragments); and I. Goncharov's *Oblomov* (fragments). Films include A. Tarkovsky's *Andrei Rublev*; N. Mikhalkov's *Several Days from Oblomov's Life*; A. Askoldov's *Comissar*; Todorovsky's *Stiliagi*; K. Muratova's *Asthenic Syndrome*; and A. Zviagintsev's *Loveless*. All written assignments, texts, and discussions are in Russian. RUSS 142 or 151, or permission of instructor. L5, HU

*** RUSS 177b, Fantastika: Russian Fantasy and Science Fiction** Anastasia Selemeneva

This course explores the fantastic in Russian literature and film, while further advancing communicative competence in the Russian language. We trace the development of the fantastic in Russian literature and film in the 20th and 21st centuries, with an eye toward science fiction, which emerged and rose to prominence during the Soviet era. Among the questions we consider are the tension between imagined and real societies and how alternative worlds explore the nature of our own being; the impact of technical progress on human race and whether science fiction anticipates scientific innovation and social change; the appeal of the fantastic to a contemporary reader and how science fiction meets the human need for a desired past or future. Taught in Russian. Prerequisite: RUSS 161 or instructor's permission. L5, HU

*** RUSS 222a / FILM 369a / HUMS 186a / RSEE 244a, War Games** Marijeta Bozovic

Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and

reading books, we pose the following questions: How do players “perform” war in games, and how might they resist or subvert expected performances? How indeed are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU

* **RUSS 246b / RSEE 246b, *Love and Death in the Russian Short Story*** Edyta Bojanowska

A brilliant counterpart to the expansive Russian novel, the Russian short story is held in high esteem by the genre’s connoisseurs and practitioners. This course explores both the classics and the hidden gems of the Russian short-story tradition from the 19th century to today, focusing on the most universal themes of story-writing: love and death. The course poses the following questions: What is distinctive about the short story form? How do stories “talk to” other stories in a tradition? What narrative twists and complications do authors use to keep readers hooked and spellbound? The readings cover most major Russian writers and movements, so the course provides a good overview of modern Russian literature. All readings and discussion in English.

WR, HU

RUSS 257b / THST 257b, *Chekhov* John MacKay

Close analysis of the major stories and plays of Anton Chekhov. Chekhov’s innovations in narrative and dramatic form; the relationship of the works to their complex times. The importance of Chekhov for theatrical practice worldwide, as mediated by Stanislavsky and others. Readings and discussion in English. HU

* **RUSS 267a / LITR 205a / RSEE 257a, *Memory and Memoir in Russian Culture*** Jinyi Chu

How do we remember and forget? How does memory transform into narrative? Why do we read and write memoirs and autobiography? What can they tell us about the past? How do we analyze the roles of the narrator, the author, and the protagonist? How should we understand the ideological tensions between official historiography and personal reminiscences, especially in 20th-century Russia? This course aims to answer these questions through close readings of a few cultural celebrities’ memoirs and autobiographical writings that are also widely acknowledged as the best representatives of 20th-century Russian prose. Along the way, we read literary texts in dialogue with theories of memory, historiography, and narratology. Students acquire the theoretical apparatus that enables them to analyze the complex ideas, e.g. cultural memory and trauma, historicity and narrativity, and fiction and non-fiction. Students finish the course with an in-depth knowledge of the major themes of 20th-century Russian history, e.g. empire, revolution, war, Stalinism, and exilic experience, as well as increased skills in the analysis of literary texts. Students with knowledge of Russian are encouraged to read in the original language. All readings are available in English. WR, HU

* **RUSS 313a / LITR 210a / RSEE 313a / SLAV 313a and SLAV 613a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

* **RUSS 316a / EALL 288a / EAST 316a / LITR 303a / RSEE 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today’s America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

* **RUSS 324b / RSEE 322b, The Master and Margarita: Money, Sex, and Power in Stalin's Russia** Nariman Shelepkayev

Mikhail Bulgakov's *The Master and Margarita* is the most popular Russian novel of the twentieth century. Its plot, which describes the Devil's visit to Moscow in the 1930s, has no analogues in modern Russian literature: it mixes ingeniously the elements of adventure, romance, history, philosophy, fantasy, and satirical novels. Bulgakov worked on his magnum opus for twelve years, from 1928 and until his death in 1940. The novel, however, was not published until 1966, when the first section appeared in the magazine *Moskva*, which sold out within hours. For contemporary readers, Bulgakov's text is a treasure trove of insight about society, culture, morality, economics, power, religion, entertainment, politics, police, and everyday life in the Stalin era. But Bulgakov also raises deep philosophical issues: the various chapters of *The Master and Margarita* are case studies dealing provocatively and in depth with the meaning of life and the fear of death, good and evil, love and loyalty, ethics and responsibility, and so much more. As a bonus, the final chapters offer us Bulgakov's own recipe for happiness. During the semester, we dive into the intricacies of Bulgakov's narrative, studying not only the

structure, content, and characters of the novel, but also – through some visual sources and scholarly articles – the history of Stalinist Moscow, and the textual sources that permeate the book, from the Bible, Goethe's *Faust*, and Dante's *The Divine Comedy*, to Gogol and Pushkin, to Bulgakov's fellow writers and philosophers. WR, HU, SO

*** RUSS 325a / HIST 293a / RSEE 325a / URBN 303a, Ten Eurasian Cities** Nariman Shelekpayev

This course explores histories and identities of ten cities in Northern and Central Eurasia. Its approach is based on an assumption that studying cities is crucial for an understanding of how societies developed on the territory of the Russian Empire, the Soviet Union, and post-Soviet states. The course is structured around the study of ten cities – Kyiv, Saint Petersburg, Moscow, Odesa, Baku, Magnitogorsk, Kharkiv, Tashkent, Semey (former Semipalatinsk), and Nur-Sultan (former Astana) – that are located on the territory of modern Ukraine, Russia, Central Asia, and the Caucasus. We study these cities through the prism of various scholarly approaches, as well as historical and visual sources. Literary texts are used not only as a means to illustrate certain historical processes but as artifacts that were instrumental in creating the identity of these cities within and beyond their territories. The ultimate goal of the course is to acquaint all participants with the dynamics of social, cultural, and political development of the ten Eurasian cities, their urban layout and architectural features. The course also provides an overview of basic conceptual approaches to the study of cities and ongoing urbanization in Northern and Central Eurasia. HU, SO

*** RUSS 355a / EVST 294a / HUMS 294a / RSEE 355a, Ecology and Russian Culture** Molly Brunson

Interdisciplinary study of Russian literature, film, and art from the nineteenth to the twenty-first centuries, organized into four units – forest, farm, labor, and disaster. Topics include: perception and representation of nature; deforestation and human habitation; politics and culture of land-ownership; leisure, labor, and forced labor; modernity and industrialization; and nuclear technologies and disasters. Analysis of short stories, novels, and supplementary readings on ecocriticism and environmental humanities, as well as films, paintings, and visual materials. Several course meetings take place at the Yale Farm. Readings and discussions in English. HU

*** RUSS 480a and RUSS 481b, Directed Reading in Russian Literature** Staff

Individual study under the supervision of a faculty member selected by the student. Applicants must submit a prospectus approved by the adviser to the director of undergraduate studies by the end of the first week of classes in the term in which the course is taken. The student meets with the adviser at least one hour each week, and takes a final examination or writes a term paper. No credit granted without prior approval of the director of undergraduate studies.

*** RUSS 490a and RUSS 491b, The Senior Essay** Staff

Research and writing on a topic of the student's own devising. Regular meetings with an adviser as the work progresses from prospectus to final form.

Russian, East European, and Eurasian Studies (RSEE)

*** RSEE 219b / THST 233b, History of Russian Theater** Julia Titus

This seminar introduces students to the rich legacy of Russian theater, focusing specifically on the developments of Russian drama from the first third of the nineteenth-century to the early twentieth century. The readings and plays studied in the course are organized chronologically, starting with classic Russian comedies by Alexander Griboyedov and Nikolai Gogol, continuing with dramas by Alexander Ostrovsky and Ivan Turgenev, and ending with late nineteenth-century/early twentieth century plays by Leo Tolstoy and Anton Chekhov. Some readings from Stanislavsky are also included. This course will be taught in Russian, with some readings in English and others in Russian. HU

*** RSEE 222b / HIST 222Jb, Russia and the Eurasian Steppe** Paul Bushkovitch
A study of Russia's interaction with the nomads of the Eurasian steppe. Topics include the Mongol invasion, the Mongol Empire in Asia and the Golden Horde, Islam, nomadic society, and the Russian state. Focus on conquest and settlement. May count toward either European or Asian distributional credit within the History major, upon application to the director of undergraduate studies. WR, HU

RSEE 225a / HIST 290a, Russia from the Ninth Century to 1801 Staff

The mainstream of Russian history from the Kievan state to 1801. Political, social, and economic institutions and the transition from Eastern Orthodoxy to the Enlightenment. HU o Course cr

*** RSEE 241b / HIST 240Jb, Government, Law, and Society in Modern Russia, 1853-1953** Sergei Antonov

Russian political culture from the Crimean War to the death of Stalin. Special attention to continuities, as well as changes, across the revolutionary divide of 1917, and to comparing official policies with daily experiences of ordinary Russians. Changing ideologies and ruling styles of tsars and early Soviet leaders (esp. Lenin, Trotsky, and Stalin) and relations with aristocratic and bureaucratic elites; political dissent and protest, including popular and state-imposed violence; the problem of legality and the rule of law. All discussions and readings in English. WR, HU TR

*** RSEE 244a / FILM 369a / HUMS 186a / RUSS 222a, War Games** Marijeta Bozovic
Dismissed, mocked, feared or loved for decades, video games have become a staple of contemporary media, art, and popular culture, studied alongside traditional print media and film. They eclipse the global yearly revenue of both film and music industries combined, leaving their financial significance undeniable. What remains understudied, however, is the political and cultural significance of the medium. *War Games* is a seminar dedicated to the intersection of video games and political violence (both real and imaginary) in a global and particularly post-Cold War context. Students learn to recognize patterns of ideological communication in video games while developing close reading skills of literature and digital media alike. We combine the study of video games with broader inquiries into the media that circulate through the game mediaverse, including literature, social and news media, and film. Playing games and reading books, we pose the following questions: How do players “perform” war in games, and how might they resist or subvert expected performances? How indeed

are we as readers and players affected by the type of media we consume? What is an adaptation? How do adaptations influence or potentially reshape our relationships with the source material? What themes and ideas are revealed effectively through one medium versus another? Why do certain literary traditions (such as classical Russian literature) provide such fruitful ground for video game adaptation? What are the political implications for the ideologies present in a video game given the globalized position of the medium? Assigned readings include novels, short stories, news media, and internet forums alongside a range of secondary materials, including film and media theory, intellectual and media histories, digital anthropology, reception studies, and interviews. HU

* **RSEE 246b / RUSS 246b, Love and Death in the Russian Short Story** Edyta Bojanowska

A brilliant counterpart to the expansive Russian novel, the Russian short story is held in high esteem by the genre's connoisseurs and practitioners. This course explores both the classics and the hidden gems of the Russian short-story tradition from the 19th century to today, focusing on the most universal themes of story-writing: love and death. The course poses the following questions: What is distinctive about the short story form? How do stories "talk to" other stories in a tradition? What narrative twists and complications do authors use to keep readers hooked and spellbound? The readings cover most major Russian writers and movements, so the course provides a good overview of modern Russian literature. All readings and discussion in English. WR, HU

* **RSEE 257a / LITR 205a / RUSS 267a, Memory and Memoir in Russian Culture** Jinyi Chu

How do we remember and forget? How does memory transform into narrative? Why do we read and write memoirs and autobiography? What can they tell us about the past? How do we analyze the roles of the narrator, the author, and the protagonist? How should we understand the ideological tensions between official historiography and personal reminiscences, especially in 20th-century Russia? This course aims to answer these questions through close readings of a few cultural celebrities' memoirs and autobiographical writings that are also widely acknowledged as the best representatives of 20th-century Russian prose. Along the way, we read literary texts in dialogue with theories of memory, historiography, and narratology. Students acquire the theoretical apparatus that enables them to analyze the complex ideas, e.g. cultural memory and trauma, historicity and narrativity, and fiction and non-fiction. Students finish the course with an in-depth knowledge of the major themes of 20th-century Russian history, e.g. empire, revolution, war, Stalinism, and exilic experience, as well as increased skills in the analysis of literary texts. Students with knowledge of Russian are encouraged to read in the original language. All readings are available in English. WR, HU

RSEE 271a / HIST 271a / HUMS 339a, European Intellectual History since Nietzsche Staff

Major currents in European intellectual history from the late nineteenth century through the twentieth. Topics include Marxism-Leninism, psychoanalysis, expressionism, structuralism, phenomenology, existentialism, antipolitics, and deconstruction. HU o Course cr

*** RSEE 313a / LITR 210a / RUSS 313a / SLAV 313a and SLAV 613a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

*** RSEE 316a / EALL 288a / EAST 316a / LITR 303a / RUSS 316a, Socialist '80s: Aesthetics of Reform in China and the Soviet Union** Jinyi Chu

This course offers an interdisciplinary introduction to the study of the complex cultural and political paradigms of late socialism from a transnational perspective by focusing on the literature, cinema, and popular culture of the Soviet Union and China in 1980s. How were intellectual and everyday life in the Soviet Union and China distinct from and similar to that of the West of the same era? How do we parse “the cultural logic of late socialism?” What can today’s America learn from it? Examining two major socialist cultures together in a global context, this course queries the ethnographic, ideological, and socio-economic constituents of late socialism. Students analyze cultural materials in the context of Soviet and Chinese history. Along the way, we explore themes of identity, nationalism, globalization, capitalism, and the Cold War. Students with knowledge of Russian and Chinese are encouraged to read in original languages. All readings are available in English. WR, HU TR

*** RSEE 322b / RUSS 324b, The Master and Margarita: Money, Sex, and Power in Stalin's Russia** Nariman Shelepkayev

Mikhail Bulgakov's *The Master and Margarita* is the most popular Russian novel of the twentieth century. Its plot, which describes the Devil's visit to Moscow in the 1930s, has no analogues in modern Russian literature: it mixes ingeniously the elements of adventure, romance, history, philosophy, fantasy, and satirical novels. Bulgakov worked on his magnum opus for twelve years, from 1928 and until his death in 1940. The novel, however, was not published until 1966, when the first section appeared in the magazine *Moskva*, which sold out within hours. For contemporary readers, Bulgakov's text is a treasure trove of insight about society, culture, morality, economics, power, religion, entertainment, politics, police, and everyday life in the Stalin era. But Bulgakov also raises deep philosophical issues: the various chapters of *The Master and Margarita* are case studies dealing provocatively and in depth with the meaning of life and the fear of death, good and evil, love and loyalty, ethics and responsibility, and so much more. As a bonus, the final chapters offer us Bulgakov's own recipe for happiness. During the semester, we dive into the intricacies of Bulgakov's narrative, studying not only the

structure, content, and characters of the novel, but also – through some visual sources and scholarly articles – the history of Stalinist Moscow, and the textual sources that permeate the book, from the Bible, Goethe’s *Faust*, and Dante’s *The Divine Comedy*, to Gogol and Pushkin, to Bulgakov’s fellow writers and philosophers. WR, HU, SO

* **RSEE 325a / HIST 293a / RUSS 325a / URBN 303a, Ten Eurasian Cities** Nariman Shelekpayev

This course explores histories and identities of ten cities in Northern and Central Eurasia. Its approach is based on an assumption that studying cities is crucial for an understanding of how societies developed on the territory of the Russian Empire, the Soviet Union, and post-Soviet states. The course is structured around the study of ten cities – Kyiv, Saint Petersburg, Moscow, Odesa, Baku, Magnitogorsk, Kharkiv, Tashkent, Semey (former Semipalatinsk), and Nur-Sultan (former Astana) – that are located on the territory of modern Ukraine, Russia, Central Asia, and the Caucasus. We study these cities through the prism of various scholarly approaches, as well as historical and visual sources. Literary texts are used not only as a means to illustrate certain historical processes but as artifacts that were instrumental in creating the identity of these cities within and beyond their territories. The ultimate goal of the course is to acquaint all participants with the dynamics of social, cultural, and political development of the ten Eurasian cities, their urban layout and architectural features. The course also provides an overview of basic conceptual approaches to the study of cities and ongoing urbanization in Northern and Central Eurasia. HU, SO

* **RSEE 355a / EVST 294a / HUMS 294a / RUSS 355a, Ecology and Russian Culture** Molly Brunson

Interdisciplinary study of Russian literature, film, and art from the nineteenth to the twenty-first centuries, organized into four units – forest, farm, labor, and disaster. Topics include: perception and representation of nature; deforestation and human habitation; politics and culture of land-ownership; leisure, labor, and forced labor; modernity and industrialization; and nuclear technologies and disasters. Analysis of short stories, novels, and supplementary readings on ecocriticism and environmental humanities, as well as films, paintings, and visual materials. Several course meetings take place at the Yale Farm. Readings and discussions in English. HU

* **RSEE 470a or b, Individual Writing Tutorial** Staff

* **RSEE 490a or b, The Senior Essay** Staff

Preparation of the senior essay under faculty supervision. The essay grade becomes the grade for both terms of the course. Required of all seniors majoring in Russian and East European Studies. Credit for RSEE 490 only on completion of RSEE 491.

Sanskrit (SKRT)

* **SKRT 110a / LING 115a, Introductory Sanskrit I** Aleksandar Uskokov

An introduction to Sanskrit language and grammar. Focus on learning to read and translate basic Sanskrit sentences in Devanagari script. No prior background in Sanskrit assumed. L1 1½ Course cr

SKRT 120b / LING 125b, Introductory Sanskrit II Aleksandar Uskokov

Continuation of SKRT 110. Focus on the basics of Sanskrit grammar; readings from classical Sanskrit texts written in Devanagari script. After SKRT 110. L2 1½ Course cr

SKRT 130a / LING 138a, Intermediate Sanskrit I Aleksandar Uskokov

The first half of a two-term sequence aimed at helping students develop the skills necessary to read texts written in Sanskrit. Readings include selections from the *Hitopadesa*, *Kathasaritsagara*, *Mahabharata*, and *Bhagavadgita*. After SKRT 120 or equivalent. L3

*** SKRT 156a, Advanced Sanskrit: Readings in Philosophical Poems** Aleksandar Uskokov

The purpose of this course is to introduce Sanskrit philosophical works, broadly construed, written in verse. The focus of the course ranges from highly aestheticized narrative literature that makes philosophical points and often includes philosophical instruction (for instance, the *Yogavāsiṣṭha*); over philosophical sections of the epics (*Mahābhārata*), *Purāṇas* (*Viṣṇu*, *Bhagavata*), and medieval literature (*Adhyātma Rāmāyaṇa*); through praise poetry with philosophical significance (*stotras*); to strictly philosophical works set in verse (such as *Gauṅapāda's Āgama-āstra* or *Nāgārjuna's Mūla-madhyama-kārikā*). Special attention is given to matters of style, as well as to advanced morphology and syntax. Additionally, the course pays attention to the scholastic techniques of: (1) word glossing; (2) sentence construction; (3) word morphology through the principle of base and suffix; and (4) compound analysis. With this, the course facilitates learning the art of reading commentaries for the sake of understanding texts. The text of focus in any term of instruction is chosen according to student interest, therefore the course is repeatable for credit. Prerequisite: Two years of Sanskrit (=L4 or equivalent). In exceptional cases (depending on the specific text taught in a specific term), graduate students may join with a year of Sanskrit and should contact the instructor. L5

Science (SCIE)*** SCIE 010a and SCIE 011b, Perspectives on Biological Research** Sandy Chang

The goal of this two course series is to teach Science, Technology, and Research Scholars 1 (STARS1) scientific skills necessary to conduct cutting-edge undergraduate research in their first summer. During the first semester, students read primary research papers on the COVID19 pandemic and emerge from this course with an appreciation for how rapidly scientific knowledge can be utilized to combat a deadly disease. Students learn how to (1) read the primary scientific literature, (2) present this material to the class and, (3) write a group grant proposal. During the second semester, students are required to take MCDB 201L concurrently and identify a Yale research mentor to work with over the summer. Students learn how to write an independent grant proposal to prepare them for summer research. Students receive guaranteed funding upon successful completion of the grant proposal. Credit for SCIE 010 is given only upon completion of SCIE 011. One course credit, one SC or WR credit, is awarded after successful completion of the grant proposal and one year's work. Prerequisite: Score of 5 on AP biology test or equivalent on IB biology exam. Students MUST take MCDB 201L, Molecular Biology Laboratory, in Spring 2023 concurrent with SCIE 011. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, SC ½ Course cr per term

*** SCIE 020a and SCIE 021b, Perspectives on Research in the Mathematical and Physical Sciences** Charles Bailyn

This first-year seminar is the first of a two-part sequence designed for students in the Science, Technology and Research Scholars (STARS) program, and other first-year students interesting in studying the physical and mathematical sciences. In the first semester, students encounter on-going research at Yale and in the broader scientific community across physics, astronomy, geology, computer science and data science. Skills necessary to understand, write, and present research in these areas are developed. In the second semester, students identify a Yale research mentor and prepare an independent grant proposal to prepare for summer research. The organizational structures and best practices associated with scientific research are examined. Credit for SCIE 020 is given only upon successful completion of SCIE 021. One course credit, one SC or WR credit, is awarded after successful completion of both courses. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. Corequisite: Students must enroll in an appropriate introductory course sequence in Physics or Computer Science. WR, SC ½ Course cr per term

*** SCIE 030a and SCIE 031b, Current Topics in Science** Douglas Kankel

A series of modules in lecture and discussion format addressing scientific issues arising in current affairs. Topics are selected for their scientific interest and contemporary relevance, and may include global warming, human cloning, and the existence of extrasolar planets. Credit for SCIE 030 upon completion of SCIE 031; one course credit is awarded for successful completion of the year's work. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC ½ Course cr per term

*** SCIE 099b / MB&B 099b / MCDB 099b / MENG 099b / PHYS 099b, Introduction to Research Methods in Physics and Biology: Preparing for a First Research Experience** Simon Mochrie

Spanning both the classroom and laboratory, this seminar course provides an immersive introduction to scientific research. Students build practical laboratory skills, computational competency, and begin to build fluency in the structures and modes of communication that define modern research. The course also facilitates identification of a laboratory mentor and devising a research proposal (with mentorship) for competitive summer research fellowship applications. This class is open to first-year students, interested in any STEM major, who have no prior research experience. This course does not count toward major requirements. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

Sinhala (SNHL)

*** SNHL 110a, Elementary Sinhala I** Staff

First half of a two-term sequence focusing on all four language skills. Basic grammar, sentence construction, simple reading materials, and use of everyday expressions. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

*** SNHL 120b, Elementary Sinhala II** Staff

Second half of a two-term sequence focusing on all four language skills. Basic grammar, sentence construction, simple reading materials, and use of everyday expressions. Prerequisite: SNHL 110. Course taught through distance learning using videoconferencing technology from Cornell University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 1½ Course cr

*** SNHL 130a, Intermediate Sinhala I** Staff

Further development of speaking, listening, reading, and writing skills in Sinhala. Communicative approach to the exchange of ideas and information, with early emphasis on oral skills and reading comprehension. Prerequisite: SNHL 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

*** SNHL 140b, Intermediate Sinhala II** Staff

Further development of speaking, listening, reading, and writing skills in Sinhala, with a communicative approach to the exchange of ideas and information. Prepares students for the transition to the study of literary Sinhala. Prerequisite: SNHL 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

SNHL 150a, Advanced Literary Sinhala I Staff

This course introduces the distinctive grammatical forms and vocabulary used in Literary Sinhala. While focused particularly on the development of reading skills, the course also introduces students to Literary Sinhala composition, builds students' listening comprehension of semi-literary Sinhala forms (such as those used in radio and TV news), and guides students in incorporating elements of the literary register of Sinhala in their spoken production. Prerequisite: SNHL 140, or equivalent. L5 RP

Slavic Languages and Literatures (SLAV)

*** SLAV 313a and SLAV 613a / LITR 210a / RSEE 313a / RUSS 313a / THST 314a, Art and Resistance in Belarus, Russia, and Ukraine** Staff

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the "Khrushchev Thaw" on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: "nonconformism," "dissidence," "mimicry," "rebellion." The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies

of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

Sociology (SOCY)

* **SOCY 081a / ER&M 081a / MUSI 081a, Race and Place in British New Wave, K-Pop, and Beyond** Grace Kao

This seminar introduces you to several popular musical genres and explores how they are tied to racial, regional, and national identities. We examine how music is exported via migrants, return migrants, industry professionals, and the nation-state (in the case of Korean Popular Music, or K-Pop). Readings and discussions focus primarily on the British New Wave (from about 1979 to 1985) and K-Pop (1992-present), but we also discuss first-wave reggae, ska, rocksteady from the 1960s-70s, British and American punk rock music (1970s-1980s), the precursors of modern K-Pop, and have a brief discussion of Japanese City Pop. The class focuses mainly on the British New Wave and K-Pop because these two genres of popular music have strong ties to particular geographic areas, but they became or have become extremely popular in other parts of the world. We also investigate the importance of music videos in the development of these genres. Enrollment limited to first year students. Pre-registration required: see under First Year Seminar Program. SO

SOCY 103a, Sports and Society Alex Manning

Society's love of sport is matched only by the belief that it is an area not worthy of deeper thought, inquiry, or critique (this especially applies in the United States). This course seeks to understand this seemingly paradoxical notion that sport is both one of most powerful and least respected and unserious institutions in the modern world. To do so we begin by working through theoretical approaches that give us a way to make social sense of these paradoxes and the phenomenon of sport itself. We read, watch, and discuss a wide range of sports and physical practices and interrogate sport from varying analytical levels. We cover modern sport's historical foundations and deep cultural meaning. Then we focus on sport's connection to colonialism, nationalism, and broader global and economic systems. We then shift our attention to youth sports culture in the United States and how family life and childhood are intimately connected to sport. In the second half of the course, we center gender and race in order to understand how sport serves as a contested social terrain that both reproduces and challenges systems of patriarchy and racism. SO

SOCY 112a / AMST 115a / EDST 110a, Foundations in Education Studies Staff

Introduction to key issues and debates in the U.S. public education system. Focus on the nexus of education practice, policy, and research. Social, scientific, economic, and political forces that shape approaches to schooling and education reform. Theoretical and practical perspectives from practitioners, policymakers, and scholars. SO

o Course cr

SOCY 127a / ER&M 127a / EVST 127a / WGSS 127a, Health and Illness in Social Context Staff

Present-day medicine and health care provide solutions to an ever-increasing array of human problems. Yet the achievement of health can be elusive. This course provides a broad introduction to the domains of health and illness in the U.S., with some coverage of international trends and topics. Students analyze how our personal health and

public health are shaped by social structures, political struggles, expert knowledge, and medical markets. Topics include the cultural and social meanings associated with health and illness; inequalities in health and health care access and provision; controversies surrounding healthcare, medical knowledge production, and medical decision-making; and the social institutions of the health care industry. None SO o Course cr

SOCY 133a, Computers, Networks, and Society Staff

Comparison of major algorithm-centered approaches to the analysis of complex social network and organizational data. Fundamental principles for developing a disciplined and coherent perspective on the effects of modern information technology on societies worldwide. Software warfare and algorithm sabotage; blockmodeling and privacy; legal, ethical, and policy issues. No prior experience with computers required. SO o Course cr

SOCY 141a, Sociology of Crime and Deviance Staff

An introduction to sociological approaches to crime and deviance. Review of the patterns of criminal and deviant activity within society; exploration of major theoretical accounts. Topics include drug use, violence, and white-collar crime. SO o Course cr

SOCY 144a / EDST 144a / ER&M 211a / EVST 144a, Race, Ethnicity, and Immigration Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations. SO o Course cr

SOCY 151a / PLSC 290a, Foundations of Modern Social Theory Staff

Major works of social thought from the beginning of the modern era through the 1900s. Attention to social and intellectual concepts, conceptual frameworks and methods, and contributions to contemporary social analysis. Writers include W.E.B. Du Bois, Simone De Beauvoir, Adam Smith, Thomas Hobbes, Jean-Jacques Rousseau, Immanuel Kant, Emile Durkheim, Max Weber, and Karl Marx. SO o Course cr

*** SOCY 162a / EDST 162a, Methods in Quantitative Sociology** Daniel Karell

Introduction to methods in quantitative sociological research. Topics include: data description; graphical approaches; elementary probability theory; bivariate and multivariate linear regression; regression diagnostics. Students use Stata for hands-on data analysis. QR, SO o Course cr

*** SOCY 167a, Social Networks and Society** Mattias Smangs

Introduction to the theory and practice of social network analysis. The role of social networks in contemporary society; basic properties of network measures, matrices, and statistics. Theoretical concepts such as centrality and power, cohesion and community, structural holes, duality of persons and groups, small worlds, and diffusion and contagion. Use of social structural, dynamic, and statistical approaches, as well as network analysis software. No background in statistics required. SO

*** SOCY 169a, Visual Sociology** Philip Smith

Introduction to themes and methods in visual sociology. The role and use of visual information in social life, including images, objects, settings, and human interactions.

Ethnographic photography, the study of media images, maps and diagrams, observation and coding of public settings, unobtrusive measures, and the use of internet resources. SO

SOCY 170a / AFAM 186a / LAST 214a / PLSC 378a, Contesting Injustice Staff
Exploration of why, when, and how people organize collectively to challenge political, social, and economic injustice. Cross-national comparison of the extent, causes, and consequences of inequality. Analysis of mobilizations for social justice in both U.S. and international settings. Intended primarily for first years and sophomores. SO
o Course cr

* **SOCY 201a / PLSC 397a, Right-Wing Extremism, Antisemitism, & Terrorism**
Liram Koblenz

This course has been specially created to provide students with an in-depth understanding of far-right extremism, with a detailed focus on examining the current state of antisemitism. Students learn about the profound connections between these two phenomena and obtain a wide-ranging perspective on the underlying dynamics and factors, many of them born of the digital age, that increase the danger that these two phenomena pose. SO

* **SOCY 202a, Cultural Sociology** Yagmur Karakaya
Study of "irrational" meanings in supposedly rational, modern societies. Social meanings are symbolic, sensual, emotional, and moral. They affect every dimension of social life, from politics and markets to race and gender relations, class conflict, and war. Examination of century old counter-intuitive writings of Durkheim and Weber, breakthroughs of semiotics and anthropology in mid-century, creation of modern cultural sociology in the 1980s, and new thinking about social performance and material icons today. Topics include: ancient and modern religion, contemporary capitalism, professional wrestling, the Iraq War, impeachment of Bill Clinton, Barack Obama's first presidential campaign, and the new cult of vinyl records. SO
o Course cr

* **SOCY 210a / EVST 210a / GBL 210a, The State and its Environment** Jonathan Wyrzten and Benjamin Kaplow

This course engages two core entwined questions: How does the state impact its surroundings and environment? And, how do these impact the state? The goal of this course is to give students a grounding in an interdisciplinary range of relevant social science literatures that help them think through those questions and how they relate to each other. The course addresses how states interact with and impact their ecological environment, but centers broader questions of how states relate to space, resources, populations, and to the socially constructed patterns of their physical, cultural, and economic environments. In doing so, the course aims to bridge discussions of state politics with political questions of the environment. In broadening the topic from only ecology, the class aims to help students develop a portable lens with which to examine state formation and its past and present impact in a variety of contexts: economic planning, systems of land management, military rule, taxation, and population control. SO

* **SOCY 215a, Popular Culture and Memory** Yagmur Karakaya
Is consuming the past liberating or mind-numbing? To answer this question, this class examines memory from a sociological perspective while interrogating the intersections

between popular culture, populism, and politics of history. As movements like MAGA or Hindutva have shown, the struggle to “own,” and “define,” the past is a social issue that shapes the contemporary world. These populist uses of the past exist in an environment where entrepreneurs of pop culture, historians, and citizens compete to have a say in what yesterday looked like. For example, the 1619 Project and Get Out both came out during the height of a populist presidency and defined the past in their own terms. Primarily relying on TV and film as data, we think about the current boom in memory content, the fight to control it, and question the outcomes of mass exposure to different pasts. First, we delve into the origins of collective memory situating the nation-state as the main actor in narrating the past. In doing this we trace the move from triumphalist to apologetic approaches. Second, we learn how globalization and mass media opened up pathways to diversifying state-controlled collective memory. We explore the populist response to this development by looking at Turkey and United States. We end the course by studying the relationship between race and memory in the context of remembering the Civil Rights Movement and the political upheaval surrounding the 1619 project. SO

* **SOCY 221b / MGRK 236b / PLSC 138b, The Euro Crisis** Paris Aslanidis
Examination of how Europe continues to struggle with the social and economic repercussions of the Great Recession and the impact of socioeconomic asymmetries in countries such as Portugal, Ireland, Spain, Italy, and Greece. Topics include the euro as a viable common currency; why and how the Euro crisis erupted and spread; how the COVID-19 fallout will impact the Union. SO

SOCY 223b / PLSC 437b, Nationalism and Ethnic Politics Maria Jose Hierro
Introduction to the study of nationalism and ethnic politics. The course examines how ethnic and national identities are shaped, how the nation emerged and became the main form of political organization, and how nationalism and ethnic conflict drive politics in the world. SO

SOCY 230a / GBL 287a / PLSC 387a, Capitalism and Crisis Staff
This course provides an introduction to the study of comparative capitalism. We examine how institutions organizing labor markets, finance and the welfare state differ systematically across advanced industrialized countries and the consequence of these differences for a variety of economic and policy outcomes. These include economic growth, unemployment, levels of inequality and so on. Can we meaningfully talk about a German or Swedish model and if so, what are the main institutional arrangements that differ across these economies? How do institutions in these countries differ from more liberal capitalist economies, such as the United States? In the second part of the course, we examine the responses of different countries to a variety of economic shocks. These include the stagflation crisis of the 1970's, the slowdown in economic growth, deindustrialization, the rise in unemployment and inequality and the migration crisis. We examine how existing political and economic institutions have shaped the policy trade-offs encountered by different countries and we explain the different political responses taken in response to these crises. During the period between November 14 and November 24, enrollment will be limited to majors. After November 24, registration will be opened to all Yale College students. Please register your interest via the Yale Course Search website. SO o Course cr

* **SOCY 266a, Tragedies of Social Life and Methods to Address Them** Emily Erikson
 When attempting to solve many social problems, good intentions are not enough. It is necessary to understand the interdependencies and secondary consequences of action. This class is premised on the idea that there is often (not necessarily always) an underlying structural aspect to social problems and that understanding the structural aspect can improve our ability to successfully deal with these problems. Everyone sees the forest, but it is harder to see the roots. We are going to try to see the roots of social processes—not in the sense of origins but instead in the way in which they are interconnected. The issues covered by the class are relevant to policy making, law, activism, governance, and management. so

* **SOCY 305a / ER&M 285a / LAST 305a, Latin American Immigration to the United States: Past, Present, and Future** Angel Escamilla Garcia
 Immigration from Latin America is the one of the most important and controversial issues in the United States today. The family separation crisis, the infamous border wall, and the Dream Act dominate political debate. Latinos—numbering more than 60 million in the U.S.—are a large, heterogeneous, and growing group with a unique social, political, and cultural history. This course explores key current issues in immigration, as well as the history of Latin American migration to the U.S., with the aim of providing students the tools necessary to thoughtfully participate in current debates. so

* **SOCY 307b / ER&M 376b / MGRK 304b / PLSC 376b, Extreme and Radical Right Movements** Paris Aslanidis
 Extreme and radical right movements and political parties are a recurrent phenomenon found in most parts of the world. Discussion of their foundational values and the causes of their continuous, even increasing, support among citizens and voters. so

* **SOCY 318a / ANTH 321a / MMES 321a / WGSS 321a, Middle East Gender Studies** Marcia Inhorn
 The lives of women and men in the contemporary Middle East explored through a series of anthropological studies and documentary films. Competing discourses surrounding gender and politics, and the relation of such discourse to actual practices of everyday life. Feminism, Islamism, activism, and human rights; fertility, family, marriage, and sexuality. so

SOCY 331a / HIST 240a / RLST 347a / WGSS 291a, Sexual Minorities from Plato to the Enlightenment Staff

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's

condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham.

HU o Course cr

* **SOCY 342a / AFAM 329a, Managing Blackness in a "White Space"** Elijah Anderson
 White space" is a perceptual category that assumes a particular space to be predominantly white, one where black people are typically unexpected, marginalized when present, and made to feel unwelcome – a space that blacks perceive to be informally “off-limits” to people like them and where on occasion they encounter racialized disrespect and other forms of resistance. This course explores the challenge black people face when managing their lives in this white space. SO

* **SOCY 344a / ER&M 344a / URBN 318a, Informal Cities** Leigh-Anna Hidalgo
 Newton

The informal sector is an integral and growing part of major global cities. With a special focus on the context of U.S. cities, students examine where a burgeoning informality is visible in the region's everyday life. How planners and policymakers address informality is an important social justice challenge. But what is the informal sector, or urban informality, or the informal city? This class addresses such questions through a rigorous examination of the growing body of literature from Sociology, Latinx Studies, Urban Planning, and Geography. We reflect on the debates and theories in the study of informality in the U.S. and beyond and gain an understanding of the prevalence, characteristics, rationale, advantages and disadvantages, and socio-spatial implications of informal cities. More specifically, we examine urban informality in work – examining street vendors, sex workers, and waste pickers – as well as housing, and the built environment. SO

* **SOCY 351a, Race, Medicine, and Technology** Alka Menon

Medicine and technology are important sources of authority and institutionalization in modern societies. Drawing insights from across sociological subfields, the course offers an in-depth investigation of race, medicine, and technology in the 20th and 21st centuries. This course examines the role of medicine and related technologies in defining race and perpetuating racism. We trace how race became an important component of biomedical research in the U.S. We also follow particular medical technologies across borders of time and space, using them to understand race and nationhood in transnational perspective. Taking a broad view of technology, we analyze cutting-edge, state-of-the art technologies alongside older, more mundane technologies and infrastructures. Ultimately, we consider how medical technologies are not just treatments for individual patients but also windows into broader social and cultural structures and processes. Prerequisite: Introductory social science or ER&M course.
 WR, SO

* **SOCY 352a / HUMS 247a, Material Culture and Iconic Consciousness** Jeffrey
 Alexander

How and why contemporary societies continue to symbolize sacred and profane meanings, investing these meanings with materiality and shaping them aesthetically. Exploration of "iconic consciousness" in theoretical terms (philosophy, sociology, semiotics) and further exploration of compelling empirical studies about food and bodies, nature, fashion, celebrities, popular culture, art, architecture, branding, and politics. HU, SO

* **SOCY 362a / S&DS 178a, Sociogenomics** Ramina Sotoudeh

Since the first human genome was sequenced in 2003, social and behavioral data have become increasingly integrated with genetic data. This has proven important not only for medicine and public health but also for social science. In this course, we cover the foundations of sociogenomics research. We begin by surveying core concepts in the field, from heritability to gene-by-environment interactions, and learning the computational tools necessary for producing sociogenomics research. In later weeks, we read some of the latest applied work in the field and discuss the value and limitations of such research. The course culminates in a final project, in which students are tasked with using empirical data to answer a social genetics question of their own. SO

* **SOCY 383a / ER&M 383a, Central Americans in the U.S.** Leigh-Anna Hidalgo
Newton

This course is an interdisciplinary survey of the social, historical, political, economic, educational, and cultural experiences of Central American immigrants and their children in the United States. The primary objective of the course is to introduce students to several contemporary experiences and issues in the U.S. Central American community. Focusing mostly on Guatemalan, Honduran, and Salvadoran immigrants – the three largest groups in the United States – we explore the social structures that constrain individuals as well as the strategies and behaviors immigrants and their communities have taken to establish their presence and make a home in U.S. society and stay connected to their countries of origin. Students gain a critical understanding of Central American identities, particularly as these have been constructed through the intersection of race, ethnicity, gender, sexuality, and legal status. SO

* **SOCY 389a / GBLB 215a / LAST 386a / MGRK 237a / PLSC 375a, Populism** Paris
Aslanidis

Investigation of the populist phenomenon in party systems and the social movement arena. Conceptual, historical, and methodological analyses are supported by comparative assessments of various empirical instances in the US and around the world, from populist politicians such as Donald Trump and Bernie Sanders, to populist social movements such as the Tea Party and Occupy Wall Street. WR, SO

* **SOCY 410a / PLSC 410a, Political Protests** Maria Jose Hierro

The 2010s was the “decade of protest,” and 2019 capped this decade with an upsurge of protests all over the world. In 2020, amidst the Covid-19 pandemic, the US is witnessing the broadest protests in its history. What are the roots of these protests? Under what conditions does protest start? Why do people decide to join a protest? Under what conditions do protests succeed? Can repression kill protest movements? Focusing on recent protest movements across the world, this seminar addresses these, and other questions related to the study of political protest. SO

* **SOCY 471a, Individual Study** Staff

Individual study for qualified juniors and seniors under faculty supervision. To register for this course, each student must submit to the director of undergraduate studies a written plan of study that has been approved by a faculty adviser.

* **SOCY 491a and SOCY 492b, Senior Essay and Colloquium for Nonintensive Majors**
Staff

Independent library-based research under faculty supervision. To register for this course, students must submit a written plan of study approved by a faculty adviser to

the director of undergraduate studies no later than the end of registration period in the term in which the senior essay is to be written. The course meets biweekly, beginning in the first week of the term.

*** SOCY 493a and SOCY 494b, Senior Essay and Colloquium for Intensive Majors**

Rourke O'Brien

Independent research under faculty direction, involving empirical research and resulting in a substantial paper. Workshop meets biweekly to discuss various stages of the research process and to share experiences in gathering and analyzing data.

South Asian Studies (SAST)

SAST 245b / PLSC 403b, Political Economy of Gender Inequality Sarah Khan

This course focuses on the political and economic underpinnings and implications of gender inequality in comparative context. We draw on evidence from different cases (with a heavy skew towards the South Asia region) to guide our inquiry. The course introduces a variety of theoretical and methodological approaches, patterns and predictions emerging from empirical research, and context specific lessons. SO

SAST 261a / PHIL 118a / RLST 127a, Buddhist Thought: The Foundations Staff

This class introduces the fundamentals of Buddhist thought, focusing on the foundational doctrinal, philosophical, and ethical ideas that have animated the Buddhist tradition from its earliest days in India 2500 years ago down to the present, in places such as Tibet, China, and Japan. Though there will be occasional discussion of the social and practical contexts of the Buddhist religion, the primary focus of this course lies on how traditional Buddhist thinkers conceptualize the universe, think about the nature of human beings, and propose that people should live their lives. Our main objects of inquiry are therefore the foundational Buddhist ideas, and the classic texts in which those ideas are put forth and defended, that are broadly speaking shared by all traditions of Buddhism. In the later part of the course, we take up some of these issues in the context of specific, regional forms of Buddhism, and watch some films that provide glimpses of Buddhist religious life on the ground. HU o Course cr

*** SAST 262b / AMST 305b / EP&E 247b / ER&M 330b / FILM 298b, Digital War**

Madiha Tahir

From drones and autonomous robots to algorithmic warfare, virtual war gaming, and data mining, digital war has become a key pressing issue of our times and an emerging field of study. This course provides a critical overview of digital war, understood as the relationship between war and digital technologies. Modern warfare has been shaped by digital technologies, but the latter have also been conditioned through modern conflict: DARPA (the research arm of the US Department of Defense), for instance, has innovated aspects of everything from GPS, to stealth technology, personal computing, and the Internet. Shifting beyond a sole focus on technology and its makers, this class situates the historical antecedents and present of digital war within colonialism and imperialism. We will investigate the entanglements between technology, empire, and war, and examine how digital war – also sometimes understood as virtual or remote war – has both shaped the lives of the targeted and been conditioned by imperial ventures. We will consider visual media, fiction, art, and other works alongside scholarly texts to develop a multidisciplinary perspective on the past, present, and future of digital war.

none HU, SO

*** SAST 266a / ARCH 271a / HSAR 266a / MMES 126a, Introduction to Islamic Architecture** Staff

Introduction to the architecture of the Islamic world from the seventh century to the present, encompassing regions of Asia, North Africa, and Europe. A variety of sources and media, from architecture to urbanism and from travelogues to paintings, are used in an attempt to understand the diversity and richness of Islamic architecture. Besides traditional media, the class will make use of virtual tours of architectural monuments as well as artifacts at the Yale University Art Gallery, accessed virtually. HU o Course cr

SAST 270b / CGSC 186b / PHIL 113b / RLST 186b, Fear, Suffering, Anger, Love: Buddhist Philosophy of Mind Sonam Kachru

This course introduces students to classical Indian Buddhist philosophy of mind and the reasons why Buddhists pursued it—“the reinvention of ourselves,” or the pursuit of the transformation of persons from unhealthy to healthy ways of being minded. Class materials are drawn from categories and concerns found in theoretical and practical manuals from roughly the first to the fifth centuries C.E., but the topics are salient, including: What is the difference between mind and consciousness? Is there an unconscious? How does one model mental actions, such as attention or categorization? Are our minds structured by primal fear? Or anger? Do we ever have reason to be angry? What is cognitive control? Why do minds wander? Should mental dynamics be merely observed or attenuated or sculpted in some other way? What, if anything, is peace of mind? HU

SAST 280b / HIST 342b / RLST 180b, Mughal India, 1500–1800 Supriya Gandhi
Exploration of religion and the state in Mughal India, focusing on the period between 1500–1800. Topics include sacred sovereignty, orthodoxy, Sufism, vernacular literary and religious cultures, and the early colonial encounter. HU o Course cr

*** SAST 304b / ANTH 358b, Corporations & Communities** Jane Lynch

Can communities redefine corporations? How do corporations shape everyday life? To whom are they responsible? This course examines the relationship between commerce, society, and culture through a diverse set of case studies that are rooted in both global and local histories. Students learn about Henry Ford’s rubber plantations in the Amazon, family firms in Italy, how the East India Company shaped the modern multinational, the first company town to be established and run by an Indian firm, transnational “stakeholder” arrangements to compensate injured garment workers in Bangladesh, and the rise of “corporate social responsibility” culture. The goal of this course is not to define the relationship between corporations and communities as singular or obvious, but rather, to draw out the variety of factors—economic, historical, social, and cultural—that shape commercial interactions, institutional cultures, and claims about market ethics and social responsibility. HU, SO

*** SAST 306b / ANTH 322b / EVST 324b, Environmental Justice in South Asia**
Kalyanakrishnan Sivaramakrishnan

Study of South Asia’s nation building and economic development in the aftermath of war and decolonization in the 20th century. How it generated unprecedented stress on natural environments; increased social disparity; and exposure of the poor and minorities to environmental risks and loss of homes, livelihoods, and cultural resources. Discussion of the rise of environmental justice movements and policies in the region as the world comes to grips with living in the Anthropocene. . SO o Course cr

* **SAST 358a / RLST 230a, Yoga in South Asia and Beyond** Supriya Gandhi

The history of yoga practice and thought from the earliest textual discussions of yoga until the present day. Topics include the body, cosmology, cross-cultural interactions, colonialism, and orientalism. This course is not open to students previously enrolled in RLST 018 or SAST 058. HU TR

* **SAST 366a / RLST 183a, The Gita: Humanities at World's End** Sonam Kachru

An examination of the Bhagavad Gita in its historical and religious context. Exploration of the major interpretations of this important religious text. All readings in translation. HU

* **SAST 470b / PHIL 429b / RLST 430b, Indian Philosophy in Sanskrit Literature**
Aleksandar Uskokov

In this course we focus on issues of philosophical significance in Sanskrit literature of "non-standard" philosophical genres, i.e., other than the treatise and the commentary. Specifically we read from canonical Hindu texts such as the Upani#ads, Mahābhāra, Rāmāya#a, Bhāgavata Purā#a, Bhagavad-gītā, and Yogavāsi##ha; the classical genres of drama and praise poetry; and hagiographical literature, all in English translation. Attention is paid not only to substance but also form. The selection of philosophical problems includes philosophy of mind and personal identity; allegory; the ethics of non-violence; philosophy, politics, and religious pluralism; the highest good; theodicy; philosophical debate; etc. HU

* **SAST 475a / AMST 350a / ER&M 319a / THST 350a, Drama in Diaspora: South Asian American Theater and Performance** Shilarna Stokes

South Asian Americans have appeared on U.S. stages since the late nineteenth century, yet only in the last quarter century have plays and performances by South Asian Americans begun to dismantle dominant cultural representations of South Asian and South Asian American communities and to imagine new ways of belonging. This seminar introduces you to contemporary works of performance (plays, stand-up sets, multimedia events) written and created by U.S.-based artists of South Asian descent as well as artists of the South Asian diaspora whose works have had an impact on U.S. audiences. With awareness that the South Asian American diaspora comprises multiple, contested, and contingent identities, we investigate how artists have worked to manifest complex representations of South Asian Americans onstage, challenge institutional and professional norms, and navigate the perils and pleasures of becoming visible. No prior experience with or study of theater/performance required. Students in all years and majors welcome. HU

* **SAST 486a, Directed Study** Staff

A one-credit, single-term course on topics not covered in regular offerings. To apply for admission, a student should present a course description and syllabus to the director of undergraduate studies, along with written approval from the faculty member who will direct the study.

* **SAST 491a, Senior Essay** Staff

A yearlong research project completed under faculty supervision and resulting in a substantial paper. Credit for SAST 491 on completion of SAST 492. ½ Course cr

Spanish (SPAN)

* **SPAN 060b, First-Year Colloquium: Literary Studies in Spanish** Noel Valis

Introduction to the study of literature in general and to some of the most important texts in Hispanic literature. Selected texts in Spanish include short stories, essays, lyric, and theater. Open to students who have placed into L5 courses. Counts toward the requirements of the Spanish major with permission of the director of undergraduate studies. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. L5, HU

* **SPAN 100b, Spanish for Reading** María Pilar Asensio-Manrique

Overview of fundamental grammar structures and basic vocabulary through comprehensive reading and translation of texts in various fields (primarily humanities and social sciences, and others as determined by student interest). No previous knowledge of Spanish needed. Conducted in English. No preregistration required. Does not satisfy the Yale College language requirement.

* **SPAN 110a or b, Elementary Spanish I** Staff

For students who wish to begin study of the Spanish language. Development of basic skills in understanding, speaking, reading, and writing through a functional approach to the teaching of Spanish grammar. Includes an introduction to the cultures (traditions, art, literature, music) of the Spanish-speaking world. Audiovisual materials are incorporated into class sessions. Conducted in Spanish. To be followed immediately by SPAN 120. L1 1½ Course cr

SPAN 120a or b, Elementary Spanish II Staff

Further development of understanding, speaking, reading, and writing skills. Class sessions incorporate short authentic texts in Spanish, audiovisual materials, and film. Cultural topics of the Spanish-speaking world (traditions, art, literature, music) are included. Conducted in Spanish. After SPAN 110 or in accordance with placement results. Admits to SPAN 130 or 145. L2 1½ Course cr

* **SPAN 125a, Intensive Elementary Spanish** Maria-Lourdes Sabe Colom

An intensive beginning course in spoken and written Spanish that covers the material of SPAN 110 and 120 in one term. Conducted in Spanish. Admits to SPAN 130 or 145. Not open to students who have completed SPAN 110 or 120. L1, L2 RP 2 Course cr

SPAN 130a or b, Intermediate Spanish I Staff

Development of language proficiency in listening, speaking, reading, and writing through communicative activities rather than a sequence of linguistic units. Authentic Spanish language texts, films, and videos serve as the basis for the functional study of grammar and the acquisition of a broader vocabulary. Cultural topics are presented throughout the term. Prerequisites: Conducted in Spanish. Admits to SPAN 140. L3 1½ Course cr

* **SPAN 132a, Spanish for Heritage Speakers I** Sybil Alexandrov

A language course designed for students who have been exposed to Spanish—either at home or by living in a Spanish-speaking country—but who have little or no formal training in the language. Practice in all four communicative skills (comprehension, speaking, reading, writing), with special attention to basic grammar concepts, vocabulary building, and issues particular to heritage speakers. This course meets

during *Reading Period*: the period between the last week of classes and finals week.
Admission in accordance with placement results. L3

SPAN 140a or b, Intermediate Spanish II Staff

Continuation of SPAN 130. Development of increased proficiency in the four language skills. Greater precision in grammar usage, vocabulary enrichment, and expanded cultural awareness are achieved through communicative activities based on authentic Spanish-language texts, including a short novel. Conducted in Spanish. Admits to L5 courses. L4 1½ Course cr

* **SPAN 142b, Spanish for Heritage Speakers II** Sybil Alexandrov

Continuation of SPAN 132. Examination of complex grammar structures; consideration of problems particular to heritage speakers through the reading of both literary and journalistic texts. Practice in all communicative skills (comprehension, speaking, reading, writing). After SPAN 132 or in accordance with placement results. L4 RP

* **SPAN 145b, Intensive Intermediate Spanish** Maripaz Garcia

An intensive intermediate course in spoken and written Spanish that covers the material of SPAN 130 and 140 in one term. Conducted in Spanish. Admits to L5 courses. Not open to students who have completed SPAN 130 or 140. L3, L4 2 Course cr

SPAN 150a or b, Advanced Oral and Written Communication in Spanish Staff

Instruction in refining reading, writing, aural, and oral skills. Students reach proficiency at the advanced high level (according to ACTFL guidelines) in the four language skills of listening, speaking, reading, and writing. Conducted in Spanish. Open to students placed in the L5 level. Prerequisite: SPAN 140 or 145, or in accordance with placement results. L5 RP

* **SPAN 221a, Spanish Language and Culture through Art** Rosamaria Leon

An advanced course designed to increase student's fluency in oral and written skills. Through the exploration of five art themes relevant to Spanish speaking countries, students review advanced points of Spanish grammar, focus on vocabulary enrichment, and learn the basic principles of academic composition. The course approach for learning is a project-based model which introduces a wide variety of texts: readings, visual art, podcast, music, videos. Students are required to register for a recitation practice that consists of a weekly 40-minute conversation with students from Pontificia Universidad Católica del Perú. Prerequisite: AP with score of 5/ IB score of 7, Placement in L5 through Spanish Department placement exam or by having completed L4. L5, HU

* **SPAN 222a or b / LAST 222a or b, Legal Spanish** Mercedes Carreras

An introduction to Spanish and Latin American legal culture with a focus on the specific traits of legal language and on the development of advanced language competence. Issues such as human rights, the death penalty, the jury, contracts, statutory instruments, and rulings by the constitutional courts are explored through law journal articles, newspapers, the media, and mock trials. Enrollment limited to 18. A maximum of one course in the 200-230 range may count as an elective toward the Spanish major. L5

* **SPAN 223a / LAST 223a, Spanish in Film: An Introduction to the New Latin American Cinema** Margherita Tortora

Development of proficiency in Spanish through analysis of critically acclaimed Latin American films. Includes basic vocabulary of film criticism in Spanish as well as discussion and language exercises. Enrollment limited to 18. L5

* **SPAN 227a / LAST 227a, Creative Writing** Maria Jordan

An introduction to the craft and practice of creative writing (fiction, poetry, and essays). Focus on the development of writing skills and awareness of a variety of genres and techniques through reading of exemplary works and critical assessment of student work. Emphasis on the ability to write about abstract ideas, sentiments, dreams, and the imaginary world. Enrollment limited to 18. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

* **SPAN 228a / ER&M 278a / LAST 228a, Borders & Globalization in Hispanophone Cultures** Luna Najera

The borders that constitute the geographical divisions of the world are contingent, but they can have enormous ordering power in the lives of people and other beings. Human-made borders can both allow and disallow the flow of people and resources. Like geographical borders, social borders such as race, caste, class, and gender can form and perpetuate privileged categories of humans that restrict access of excluded persons to natural resources, education, security, and social mobility. Thus, bordering can differentially value human lives. Working with the premise that borders are sites of power, in this course we study bordering and debordering practices in the Hispanic cultures of Iberia, Latin America, and North America, from the 1490s to the present. Through analyses of a wide range of texts students will investigate the multiple ways in which social, cultural, and spatial borders are initiated, expressed, materialized, and contested. Some of the questions that will guide our conversations are: What are social borders and what are the processes through which they perdure? How do the effects of local practices that transcend borders (e.g., environmental pollution, deforestation) change our understanding of borders? How does globalization change discourse about borders? (To be conducted in Spanish.) Prerequisite: SPAN 140 or 145, or in accordance with placement results. A maximum of one course in the 200–230 range may count as an elective toward the Spanish major. L5

SPAN 230a / ER&M 287a / EVST 229a / LAST 226a, Reading Environments: Nature, Culture, and Agency Luna Najera

Extreme weather, proliferation of species extinctions, climate migration, and the outbreak of pandemics can all be understood as instances of *koyaanisqatsi*, the Hopi word for life out of balance. They may also be viewed as indications that we are living in the age of the Anthropocene, a term in the natural and social sciences that acknowledges that human activities have had a radical geological impact on the planet since the onset of the Industrial revolution. In this course we study relations between humans and other-than-humans to understand how we arrived at a life out of balance. We inquire into how binary distinctions between nature and culture are made, sustained, or questioned through a diversity of meaning-making practices in Spanish, Latin American, and indigenous literature, visual culture, and material culture. The indigenous artifacts studied include Popol Vuh, poetry, petroglyphs, and documentaries by indigenous people of the Amazon, which provide opportunities for asking pressing questions: To what extent does the nature and culture binary foreclose alternative

possibilities for imagining ourselves and our relation to the world? Are there ways of perceiving our world and ourselves that bypass such binaries and if so, what are they? In the final weeks of the course, we draw from our insights to investigate where the nature/culture binary figures in present discussions of environmental catastrophes and rights of nature movements in Latin America. Taught in Spanish. Prerequisite: SPAN 140 or 145, or in accordance with placement results. L5

*** SPAN 243a / LAST 243a, Advanced Spanish Grammar** Terry Seymour

A comprehensive, in-depth study of grammar intended to improve students' spoken and written command of Spanish. Linguistic analysis of literary selections; some English-to-Spanish translation. Enrollment limited to 18. L5

SPAN 244b / LAST 244b, Writing in Spanish Margherita Tortora

Intensive instruction and practice in writing as a means of developing critical thinking. Recommended for students considering courses in literature. Analysis of fiction and nonfiction forms, techniques, and styles. Classes conducted in a workshop format. L5

SPAN 246a, Introduction to the Cultures of Spain Staff

Study of various aspects of Spanish culture, including its continuing relation to the societies of Latin America. Examination of Spanish politics, history, religions, art forms, music, and literatures, from ancient times to the present. Primary sources and critical studies are read in the original. L5, HU

*** SPAN 262b / LAST 262b, Studies in Spanish Literature II** Staff

An introduction to Spanish prose, drama, and lyric poetry from the eighteenth century to the present, centered on the conflict between modernity and tradition and on the quest for national identity. Texts by Gustavo Adolfo Bécquer, Emilia Pardo Bazán, Antonio Machado, Federico García Lorca, Ramón Sender, and Ana María Matute, among others. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. L5, HU

*** SPAN 266a / LAST 266a, Studies in Latin American Literature I** Lisa Voigt

Cultural encounters in the New World as interpreted by authors of native American (Aztec and Inca) cultural traditions, the Spanish conquistadors and friars who encountered them and their heirs, and the Mexican creole nun (the now-world-famous Sor Juana Inés de la Cruz) who gave voice to some of their traditions as she created a space for her own writing in the literary world. Their resonance and legacy today. L5, HU

SPAN 267b / LAST 267b / LITR 258b, Studies in Latin American Literature II Lisa Voigt

An introduction to Latin American literature from the nineteenth century to the present. Works by Borges, García Márquez, Paz, Neruda, Cortázar, and others. L5, HU

*** SPAN 291a / HUMS 387a, Introduction to Digital Humanities I: Architectures of Knowledge** Alexander Gil Fuentes

The cultural record of humanity is undergoing a massive and epochal transformation into shared analog and digital realities. While we are vaguely familiar with the history and realities of the analog record—libraries, archives, historical artifacts—the digital cultural record remains largely unexamined and relatively mysterious to humanities scholars. In this course you will be introduced to the broad field of Digital Humanities, theory and practice, through a stepwise exploration of the new architectures and genres of scholarly and humanistic production and reproduction in the 21st century. The

course combines a seminar, preceded by a brief lecture, and a digital studio. Every week we will move through our discussions in tandem with hands-on exercises that will serve to illuminate our readings and help you gain a measure of computational proficiency useful in humanities scholarship. You will learn about the basics of plain text, file and operating systems, data structures and internet infrastructure. You will also learn to understand, produce and evaluate a few popular genres of Digital Humanities, including, digital editions of literary or historical texts, collections and exhibits of primary sources and interactive maps. Finally, and perhaps the most important lesson of the semester, you will learn to collaborate with each other on a common research project. No prior experience is required. HU

* **SPAN 350a / LAST 351a, Borges: Literature and Power** Anibal González-Pérez
An introduction to the work of Jorge Luis Borges, focusing on the relation between literature and power as portrayed in selected stories, essays, and poems. Topics include Borges and postmodernity; writing and ethics; and Borges's politics. Works include *Ficciones*, *Otras inquisiciones*, *El aleph*, *El hacedor*, *El informe de Brodie*, and *Obra poética*. Open to students who have placed into L5 courses or who have successfully completed an L4 course in Spanish. Counts toward the Spanish major. L5, HU

* **SPAN 371b / LAST 371b, Science and Fiction in Spanish American Narrative** Anibal González-Pérez

A study of the speculative incorporation of scientific ideas and themes in contemporary Spanish American fiction from Argentina, Chile, Cuba, Dominican Republic, Ecuador, and Peru. Readings and discussions of early and mid-20th-century precursors, such as Jorge Luis Borges, Adolfo Bioy Casares, Leopoldo Lugones, Pablo Palacio, and Clemente Palma; of late-20th to early 21st-century examples of “technowriting” in Samantha Schweblin, Jorge Volpi, and Alejandro Zambra, and of utopias, dystopias and possible futures in Jorge Adolph, Jorge Baradit, Hugo Correa, Angélica Gorodischer, Francisco Ortega, Yoss, Yuri Herrera, and Carlos Yushimito. Related themes include: post-humanism, ecofiction, and sociopolitical satire. Course is taught in Spanish. Prerequisite: L4 Spanish or higher. L5, HU

* **SPAN 385b / LITR 434b, Cervantes & Don Quixote** Nicholas Jones

This course dedicates an entire semester to a close reading of the two parts of Miguel de Cervantes's novel *Don Quixote de la Mancha*. Announcing itself as a “true history,” yet, whose fictional devices clearly shine through, *Don Quixote* occupies the privileged space of first modern novel where, within its literary fabric(ations), a theory of the novel is devised. Our readings of *Don Quixote* examine how the classic novel inserts, parodies, and transforms all previous literary and non-literary discourses to ingeniously invent a new narrative form. To contextualize Cervantes and his literary-historic tradition, this seminar also explores questions of erotic and literary desire, the role of madness and mental health, empire and the circulation of material culture and material wealth, the Edenic narrative and ecologies of the natural world, censorship and the Inquisition, the status of representation and performance, translation, as well as the constructions of class, gender, race, and nation. We also study the legacy of *Don Quixote* and its quixotic narratives through contemporary art, essays, films, novels, science fiction, and television. This course is taught in Spanish. L5, HU TR

* **SPAN 478a, Directed Readings and/or Individual Research** Staff

Individual study under faculty supervision. The student must submit a bibliography and a written plan of study approved by the faculty adviser to the director of

undergraduate studies. No reading or research course credit is granted without prior approval from the director of undergraduate studies. The student must meet with the instructor at least one hour a week. A final examination or essay is required.

* **SPAN 491a, The Senior Essay** Staff

A research project completed under faculty supervision and resulting in a paper of considerable length, in Spanish.

Special Divisional Major (SPEC)

Statistics and Data Science (S&DS)

S&DS 101a / E&EB 210a, Introduction to Statistics: Life Sciences Jonathan Reuning-Scherer

Statistical and probabilistic analysis of biological problems, presented with a unified foundation in basic statistical theory. Problems are drawn from genetics, ecology, epidemiology, and bioinformatics. QR

S&DS 102a / PLSC 452a, Introduction to Statistics: Political Science Jonathan Reuning-Scherer

Statistical analysis of politics, elections, and political psychology. Problems presented with reference to a wide array of examples: public opinion, campaign finance, racially motivated crime, and public policy. QR

S&DS 103a / PLSC 453a, Introduction to Statistics: Social Sciences Jonathan Reuning-Scherer

Descriptive and inferential statistics applied to analysis of data from the social sciences. Introduction of concepts and skills for understanding and conducting quantitative research. QR

S&DS 105a, Introduction to Statistics: Medicine Jonathan Reuning-Scherer

Statistical methods used in medicine and medical research. Practice in reading medical literature competently and critically, as well as practical experience performing statistical analysis of medical data. QR

S&DS 106a, Introduction to Statistics: Data Analysis Jonathan Reuning-Scherer

An introduction to probability and statistics with emphasis on data analysis. QR

S&DS 108a, Introduction to Statistics: Advanced Fundamentals Jonathan Reuning-Scherer

Introductory statistical concepts beyond those covered in high school AP statistics.

Includes additional concepts in regression, an introduction to multiple regression, ANOVA, and logistic regression. This course is intended as a bridge between AP statistics and courses such as S&DS 230, Data Exploration and Analysis. Meets for the second half of the term only. Prerequisites: A previous statistics course in high school. May not be taken after S&DS 100, S&DS 101–106, PSYC 100, or any other full semester Yale introductory statistics courses. Students should consider S&DS 103 or both S&DS 108, 109. ½ Course cr

S&DS 109a, Introduction to Statistics: Fundamentals Jonathan Reuning-Scherer

General concepts and methods in statistics. Meets for the first half of the term only. May not be taken after or concurrently with S&DS 100 or 101–106. ½ Course cr

*** S&DS 110a, R for Statistical Computing and Data Science** Jay Emerson

Intensive introduction to the R language, widely-accepted for statistical computing and graphics, and used by the data science industry as well as in a wide range of academic disciplines. It is a useful complement (concurrently or in advance) to many courses in S&DS. Prerequisite: Some prior programming experience (in any language), even at the level of S&DS 100, or 101-109, or 123, 220, or 230. QR

*** S&DS 172a / EP&E 328a / PLSC 347a, YData: Data Science for Political Campaigns**

Joshua Kalla

Political campaigns have become increasingly data driven. Data science is used to inform where campaigns compete, which messages they use, how they deliver them, and among which voters. In this course, we explore how data science is being used to design winning campaigns. Students gain an understanding of what data is available to campaigns, how campaigns use this data to identify supporters, and the use of experiments in campaigns. This course provides students with an introduction to political campaigns, an introduction to data science tools necessary for studying politics, and opportunities to practice the data science skills presented in S&DS 123, YData.

QR

*** S&DS 178a / SOCY 362a, Sociogenomics** Ramina Sotoudeh

Since the first human genome was sequenced in 2003, social and behavioral data have become increasingly integrated with genetic data. This has proven important not only for medicine and public health but also for social science. In this course, we cover the foundations of sociogenomics research. We begin by surveying core concepts in the field, from heritability to gene-by-environment interactions, and learning the computational tools necessary for producing sociogenomics research. In later weeks, we read some of the latest applied work in the field and discuss the value and limitations of such research. The course culminates in a final project, in which students are tasked with using empirical data to answer a social genetics question of their own. SO

S&DS 230a, Data Exploration and Analysis Ethan Meyers

Survey of statistical methods: plots, transformations, regression, analysis of variance, clustering, principal components, contingency tables, and time series analysis. The R computing language and Web data sources are used. Prerequisite: a 100-level Statistics course or equivalent, or with permission of instructor. QR

S&DS 238a, Probability and Statistics Joseph Chang

Fundamental principles and techniques of probabilistic thinking, statistical modeling, and data analysis. Essentials of probability, including conditional probability, random variables, distributions, law of large numbers, central limit theorem, and Markov chains. Statistical inference with emphasis on the Bayesian approach: parameter estimation, likelihood, prior and posterior distributions, Bayesian inference using Markov chain Monte Carlo. Introduction to regression and linear models. Computers are used for calculations, simulations, and analysis of data. After or concurrently with MATH 118 or 120. QR

S&DS 240a, An Introduction to Probability Theory Robert Wooster

Introduction to probability theory. Topics include probability spaces, random variables, expectations and probabilities, conditional probability, independence, discrete and continuous distributions, central limit theorem, Markov chains, and probabilistic

modeling. This course counts towards the Data Science certificate but not the Statistics and Data Science major. Prerequisite: MATH 115. QR

S&DS 241a / MATH 241a, Probability Theory Yihong Wu

Introduction to probability theory. Topics include probability spaces, random variables, expectations and probabilities, conditional probability, independence, discrete and continuous distributions, central limit theorem, Markov chains, and probabilistic modeling. After or concurrently with MATH 120 or equivalent. QR

S&DS 265a, Introductory Machine Learning John Lafferty

This course covers the key ideas and techniques in machine learning without the use of advanced mathematics. Basic methodology and relevant concepts are presented in lectures, including the intuition behind the methods. Assignments give students hands-on experience with the methods on different types of data. Topics include linear regression and classification, tree-based methods, clustering, topic models, word embeddings, recurrent neural networks, dictionary learning and deep learning. Examples come from a variety of sources including political speeches, archives of scientific articles, real estate listings, natural images, and several others. Programming is central to the course, and is based on the Python programming language. Prerequisites: Two of the following courses: S&DS 230, 238, 240, 241 and 242; previous programming experience (e.g., R, Matlab, Python, C++), Python preferred. QR

*** S&DS 280a / NSCI 280a, Neural Data Analysis** Ethan Meyers

We discuss data analysis methods that are used in the neuroscience community. Methods include classical descriptive and inferential statistics, point process models, mutual information measures, machine learning (neural decoding) analyses, dimensionality reduction methods, and representational similarity analyses. Each week we read a research paper that uses one of these methods, and we replicate these analyses using the R or Python programming language. Emphasis is on analyzing neural spiking data, although we also discuss other imaging modalities such as magneto/electro-encephalography (EEG/MEG), two-photon imaging, and possibility functional magnetic resonance imaging data (fMRI). Data we analyze includes smaller datasets, such as single neuron recordings from songbird vocal motor system, as well as larger data sets, such as the Allen Brain observatory's simultaneous recordings from the mouse visual system. Prerequisite: S&DS 230. Background in neuroscience is recommended but not required (e.g., it would be useful to have taken at the level of NSCI 160).

S&DS 312a, Linear Models Staff

The geometry of least squares; distribution theory for normal errors; regression, analysis of variance, and designed experiments; numerical algorithms, with particular reference to the R statistical language. After S&DS 242 and MATH 222 or 225. QR

S&DS 365a, Intermediate Machine Learning John Lafferty

S&DS 365 is a second course in machine learning at the advanced undergraduate or beginning graduate level. The course assumes familiarity with the basic ideas and techniques in machine learning, for example as covered in S&DS 265. The course treats methods together with mathematical frameworks that provide intuition and justifications for how and when the methods work. Assignments give students hands-on experience with machine learning techniques, to build the skills needed to adapt approaches to new problems. Topics include nonparametric regression and

classification, kernel methods, risk bounds, nonparametric Bayesian approaches, graphical models, attention and language models, generative models, sparsity and manifolds, and reinforcement learning. Programming is central to the course, and is based on the Python programming language and Jupyter notebooks. Prerequisites: a background in probability and statistics at the level of S&DS 242; familiarity with the core ideas from linear algebra, for example through Math 222; and computational skills at the level of S&DS 265 or CPSC 200. QR

S&DS 400a / MATH 330a, Advanced Probability Sekhar Tatikonda

Measure theoretic probability, conditioning, laws of large numbers, convergence in distribution, characteristic functions, central limit theorems, martingales. Some knowledge of real analysis assumed. QR

S&DS 410a, Statistical Inference Harrison Zhou

A systematic development of the mathematical theory of statistical inference covering methods of estimation, hypothesis testing, and confidence intervals. An introduction to statistical decision theory. Prerequisite: level of S&DS 241.

* **S&DS 425a, Statistical Case Studies** Brian Macdonald

Statistical analysis of a variety of statistical problems using real data. Emphasis on methods of choosing data, acquiring data, assessing data quality, and the issues posed by extremely large data sets. Extensive computations using R statistical software. Prerequisites: S&DS 361, and prior course work in probability, statistics, and data analysis (e.g. 363, 365, 220, 230, etc., equivalent courses, or equivalent research/internship experience). QR

S&DS 431a / AMTH 431a / ECON 431a, Optimization and Computation Yang Zhuoran

This course is designed for students in Statistics & Data Science who need to know about optimization and the essentials of numerical algorithm design and analysis. It is an introduction to more advanced courses in optimization. The overarching goal of the course is teach students how to design algorithms for Machine Learning and Data Analysis (in their own research). This course is not open to students who have taken S&DS 430. Prerequisites: Knowledge of linear algebra, multivariate calculus, and probability. Linear Algebra, by MATH 222, 223 or 230 or 231; Graph Theory, by MATH 244 or CPSC 365 or 366; and comfort with proof-based exposition and problem sets, such as is gained from MATH 230 and 231, or CPSC 366.

* **S&DS 480a, Individual Studies** Sekhar Tatikonda

Directed individual study for qualified students who wish to investigate an area of statistics not covered in regular courses. A student must be sponsored by a faculty member who sets the requirements and meets regularly with the student. Enrollment requires a written plan of study approved by the faculty adviser and the director of undergraduate studies.

S&DS 491a, Senior Project Brian Macdonald

Individual research that fulfills the senior requirement. Requires a faculty adviser and DUS permission. The student must submit a written report about results of the project.

Tamil (TAML)

* TAML 130a, Intermediate Tamil I Staff

The first half of a two-term sequence designed to develop proficiency in comprehension, speaking, reading, and writing through the use of visual media, newspapers and magazines, modern fiction and poetry, and public communications such as pamphlets, advertisements, and government announcements. Prerequisite: TAML 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3
RP 1½ Course cr

* TAML 140b, Intermediate Tamil II Staff

The second half of a two-term sequence designed to develop proficiency in listening, speaking, reading, and writing. Focus on the communicative aspects of the language. Some attention to Tamil culture since the Sangam period. Prerequisite: TAML 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 1½ Course cr

Theater and Performance Studies (THST)

* THST 051a / CLCV 051a / HUMS 061a / LITR 029a / MUSI 054a, Performing Antiquity Pauline LeVen

This seminar introduces students to some of the most influential texts of Greco-Roman Antiquity and investigates the meaning of their “performance” in different ways: 1) how they were musically and dramatically performed in their original context in Antiquity (what were the rhythms, the harmonies, the dance-steps, the props used, etc.); 2) what the performance meant, in socio-cultural and political terms, for the people involved in performing or watching it, and how performance takes place beyond the stage; 3) how these texts are performed in modern times (what it means for us to translate and stage ancient plays with masks, a chorus, etc.; to reenact some ancient institutions; to reconstruct ancient instruments or compose “new ancient music”); 4) in what ways modern poems, plays, songs, ballets constitute forms of interpretation, appropriation, or contestation of ancient texts; 5) in what ways creative and embodied practice can be a form of scholarship. Besides reading ancient Greek and Latin texts in translation, students read and watch performances of modern works of reception: poems, drama, ballet, and instrumental music. A few sessions are devoted to practical activities (reenactment of a symposium, composition of ancient music, etc.). Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* THST 097a, Anatomy in Motion Renee Robinson

The connection between advances in human anatomy and kinesiology – the science of human movement – and dance practices from the early 1900s to the present. Study of seminal texts and practical exercises that drove the research of Frederick M. Alexander, Mabel Elsworth Todd, Barbara Clark, and Lulu Sweigard and the application of their ideas in contemporary movement practices today. Topics include the synthesis of dance and science; the reeducation of alignment, posture and balance; the use of imagery; and the unification of mind and body. No prior dance experience required. Enrollment

limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

*** THST 098a, Composing and Performing the One Person Play** Hal Brooks

First-year actors, playwrights, directors, and even students who have never considered taking a theater class, create their own work through a combination of reading, analysis, writing, and on-your-feet exercises. Students read texts and view performances that are generated by one actor in an attempt to discover the methodology that works best for their own creations. The course culminates with a midterm and final presentation created and performed by the student. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

THST 110a, Collaboration Elise Morrison and Emily Coates

This foundational course introduces collaborative techniques at the core of topics, domains, and practices integral to the major in Theater and Performance Studies. We explore the seeds of performance from its basic essence as human expression, to movement, text, and storytelling, gradually evolving into collectively created works of performance. Techniques and readings may be drawn from improvisation, dance, music, design and spoken word contexts, and will encourage cohort building, critical reflection, and the join of individual and collective artistic expression. Guests from within and outside performance disciplines enhance the potential to investigate crossover between different media. HU RP

*** THST 111b, Modes of Performance** Amanda Reid

This foundational course introduces students to the breadth of topics, domains, and practices included in the major in Theater and Performance Studies, as well to faculty in the program. Building on practices of collaborative research and performance making established in MUSI 110, this course alternates between immersive, practical encounters with performance techniques from different disciplines and foundational methodologies for performance analysis. Structured around the four "domains" of study within the major—histories, performance theory, interarts, and artistic practice—this course hones students' practical, analytical, research, and multi-modal communication skills. HU

*** THST 129a or b / ENGL 129a or b / HUMS 127a or b / LITR 168a or b, Tragedy in the European Literary Tradition** Staff

The genre of tragedy from its origins in ancient Greece and Rome through the European Renaissance to the present day. Themes of justice, religion, free will, family, gender, race, and dramaturgy. Works might include Aristotle's *Poetics* or Homer's *Iliad* and plays by Aeschylus, Sophocles, Euripides, Seneca, Hrotsvitha, Shakespeare, Lope de Vega, Calderon, Racine, Büchner, Ibsen, Strindberg, Chekhov, Wedekind, Synge, Lorca, Brecht, Beckett, Soyinka, Tarell Alvin McCraney, and Lynn Nottage. Focus on textual analysis and on developing the craft of persuasive argument through writing. WR, HU

*** THST 200a, Introduction to Theatrical Violence** Michael Rossmly and Kelsey Rainwater

Engagement in a theoretical and practical exploration of depicting violence in theater. Actors learn to execute the illusions of violence on stage both safely and effectively, and the skills of collaboration, partner awareness, concentration, and impulse response. Preference given to Theater Studies majors.

* **THST 207b, Introduction to Dramaturgy** Staff

Introduction to the discipline of dramaturgy. Study of dramatic literature from the ancient world to the contemporary, developing the core skills of a dramaturg. Students analyze plays for structure and logic; work with a director on production of a classical text; work with a playwright on a new play; and work with an ensemble on a devised piece. WR, HU

* **THST 210a, Performance Concepts** Shilarna Stokes

A studio introduction to the essential elements of performance. Grounded in the work of major twentieth- and twenty-first-century practitioners and theorists, this course guides students in exercises designed to cultivate physical expression, awareness of time and space, ensemble building, character development, storytelling, vocal production, embodied analysis, and textual interpretation. It is a prerequisite for several upper-level courses in Theater and Performance Studies including THST 211 and THST 300. It is open to students in all majors and in all years of study, with the permission of the instructor. RP

* **THST 215a / ENGL 434a, Writing Dance** Brian Seibert

The esteemed choreographer Merce Cunningham once compared writing about dance to trying to nail Jello-O to the wall. This seminar and workshop takes on the challenge. Taught by a dance critic for the New York Times, the course uses a close reading of exemplary dance writing to introduce approaches that students then try themselves, in response to filmed dance and live performances in New York City, in the widest possible variety of genres. No previous knowledge of dance is required. WR, HU

* **THST 218a / EALL 253a / MUSI 494a, Remapping Dance** Amanda Reid, Ameera Nimjee, and Rosa van Hensbergen

What does it mean to be at home in a body? What does it mean to move freely, and what kinds of bodies are granted that right? How is dance encoded as bodies move between various sites? In this team-taught class, we remap the field of dance through its migratory routes to understand how movement is shaped by the connections and frictions of ever-changing communities. As three dance scholars, bringing specialisms in West Indian dance, South Asian dance, and East Asian dance, we are looking to decenter the ways in which dance is taught, both in what we teach and in the ways we teach. Many of the dancers we follow create art inspired by migration, exile, and displacement (both within and beyond the nation) to write new histories of political belonging. Others trace migratory routes through mediums, ideologies, and technologies. The course is structured around four units designed to invite the remapping of dance through its many spaces of creativity: The Archive, The Studio, The Field, and The Stage. Throughout, we explore how different ideas of virtuosity, risk, precarity, radicalism, community, and solidarity are shaped by space and place. We rethink how local dance economies are governed by world markets and neoliberal funding models and ask how individual bodies can intervene in these global systems.

No dance background is required, but students have the opportunity to take part in some accessible movement practice. HU TR

* **THST 227a / AFAM 217a, Queer Caribbean Performance** Amanda Reid

With its lush and fantastic landscape, fabulous carnivalesque aesthetics, and rich African Diaspora Religious traditions, the Caribbean has long been a setting where New World black artists have staged competing visions of racial and sexual utopia and dystopia. However, these foreigner-authored fantasies have often overshadowed

the lived experience and life storytelling of Caribbean subjects. This course explores the intersecting performance cultures, politics, and sensual/sexual practices that have constituted queer life in the Caribbean region and its diaspora. Placing Caribbean queer of color critique alongside key moments in twentieth and twenty-first century performance history at home and abroad, we ask how have histories of the plantation, discourses of race and nation, migration, and revolution led to the formation of regionally specific queer identifications. What about the idea of the “tropics” has made it such as fertile ground for queer performance making, and how have artists from the region identified or dis-identified with these aesthetic formations? This class begins with an exploration of theories of queer diaspora and queer of color critique’s roots in black feminisms. We cover themes of exile, religious rites, and organizing as sights of queer political formation and creative community in the Caribbean. HU

*** THST 233b / RSEE 219b, History of Russian Theater** Julia Titus

This seminar introduces students to the rich legacy of Russian theater, focusing specifically on the developments of Russian drama from the first third of the nineteenth-century to the early twentieth century. The readings and plays studied in the course are organized chronologically, starting with classic Russian comedies by Alexander Griboyedov and Nikolai Gogol, continuing with dramas by Alexander Ostrovsky and Ivan Turgenev, and ending with late nineteenth-century/early twentieth century plays by Leo Tolstoy and Anton Chekhov. Some readings from Stanislavsky are also included. This course will be taught in Russian, with some readings in English and others in Russian. HU

*** THST 236a / MUSI 185a, American Musical Theater History** Dan Egan

Critical examination of relevance and context in the history of the American musical theater. Historical survey, including nonmusical trends, combined with text and musical analysis. Limited enrollment. Interested students should contact dan.egan@yale.edu for application requirements. WR, HU

THST 241b / FILM 232b, Classical Hollywood Narrative 1920–1960 Camille Thomasson

Survey of Classical Hollywood films. Topics include history of the studio system; origin and development of genres; the film classics of the Classical Hollywood period, and the producers, screenwriters, directors, and cinematographers who created them. WR, HU
o Course cr

THST 257b / RUSS 257b, Chekhov John MacKay

Close analysis of the major stories and plays of Anton Chekhov. Chekhov's innovations in narrative and dramatic form; the relationship of the works to their complex times. The importance of Chekhov for theatrical practice worldwide, as mediated by Stanislavsky and others. Readings and discussion in English. HU

*** THST 300a, The Director and the Text I** Toni Dorfman

Practicing fundamentals of the art of directing: close reading and deep text analysis in search of physical action; rehearsal preparation; mixing the elements of composition (scenography, light, sound & music, projections, movement, language); and most crucially—the work with the actor. Weekly assignments (some labor intensive), discussion of same, and regular on-the-floor experiments. While concentrating on basic practices, the course is designed for students to seek out an initial understanding of individual, even idiosyncratic, artistic directorial voice. Prerequisite: THST 210. HU

* **THST 307a, Making Theater with Improvs and Études** David Chambers and Shilarna Stokes

This intensive course spends the entire semester on one piece of literature—dramatic or fiction—using physical improvisations and the Étude method to explore and embody the chosen text. In the second half of the semester, we are joined by world-renowned Russian American director Dmitry Krymov, who brings his unique theatrical skills, offbeat humor, and febrile imagination to the work investigated to date. Everyone is welcome to apply. See Canvas for more details.

* **THST 314a / LITR 210a / RSEE 313a / RUSS 313a / SLAV 313a and SLAV 613a, Art and Resistance in Belarus, Russia, and Ukraine** Andrei Kureichyk

This interdisciplinary seminar is devoted to the study of protest art as part of the struggle of society against authoritarianism and totalitarianism. It focuses on the example of the Soviet and post-Soviet transformation of Belarus, Russia, and Ukraine. The period under discussion begins after the death of Stalin in 1953 and ends with the art of protest against the modern post-Soviet dictatorships of Alexander Lukashenka in Belarus and Vladimir Putin in Russia, the protest art of the Ukrainian Maidan and the anti-war movement of artists against the Russian-Ukrainian war. The course begins by looking at the influence of the “Khrushchev Thaw” on literature and cinema, which opened the way for protest art to a wide Soviet audience. We explore different approaches to protest art in conditions of political unfreedom: “nonconformism,” “dissidence,” “mimicry,” “rebellion.” The course investigates the existential conflict of artistic freedom and the political machine of authoritarianism. These themes are explored at different levels through specific examples from the works and biographies of artists. Students immerse themselves in works of different genres: films, songs, performances, plays and literary works. HU

* **THST 315a / ENGL 211a, Acting Shakespeare** James Bundy

A practicum in acting verse drama, focusing on tools to mine the printed text for given circumstances, character, objective, and action; noting the opportunities and limitations that the printed play script presents; and promoting both the expressive freedom and responsibility of the actor as an interpretive and collaborative artist in rehearsal. The course will include work on sonnets, monologues, and scenes. Admission by audition. Preference to seniors and juniors; open to nonmajors. See Canvas for application. HU
RP

* **THST 319a / AFAM 313a, Embodying Story** Renee Robinson

The intersection of storytelling and movement as seen through historical case studies, cross-disciplinary inquiry, and studio practice. Drawing on eclectic source materials from different artistic disciplines, ranging from the repertory of Alvin Ailey to journalism, architectural studies, cartoon animation, and creative processes, students develop the critical, creative, and technical skills through which to tell their own stories in movement. No prior dance experience necessary. HU

* **THST 320a / ENGL 453a, Playwriting** Donald Margulies

A seminar and workshop on reading for craft and writing for the stage. In addition to weekly prompts and exercises, readings include modern American and British plays by Pinter, Mamet, Churchill, Kushner, Nottage, Williams, Hansberry, Hwang, Vogel, and Wilder. Emphasis on play structure, character, and conflict. RP

* **THST 321a / ENGL 477a, Production Seminar: Playwriting** Deborah Margolin

A seminar and workshop in playwriting with an emphasis on exploring language and image as a vehicle for “theatricality.” Together we will use assigned readings, our own creative work, and group discussions to interrogate concepts such as “liveness,” what is “dramatic” versus “undramatic,” representation, and the uses and abuses of discomfort.

* **THST 334a, Advanced Study for Acting and Directing for Solo Performance**

Deborah Margolin

For the actor, the call to perform alone onstage happens in many different dramaturgical contexts. Solo performance is at once an old and new art form: Homer sang the *Odyssey* by himself; Hamlet stands alone onstage questioning his own ontology and the nature of being in general. Priests, stand-up comedians, monologists, TED-talkers: all solo artists. These instances demand of the actor the very specific and unusual kind of presentness that characterizes solo performance. And for the director of solo performance, the challenges are also very particular: how to establish the actor’s relationship to the audience, and how to direct the audience to the actor, be it as scene partner, as confidante, as eavesdropper, as a body of concerned witnesses. This course examines all dramatic modes of aloneness onstage, all the way through from the thinking-aloud of the soliloquy, the *in-medias-res* monologue, the stand-up comedy routine. Text analysis is followed by the study of acting techniques in best accordance with any given text. Students have the opportunity to perform classic monologues, as well as to explore modern performance texts and comedic performance. Students are also required to take on responsibilities for directing others in focusing and shaping solo work, and therefore thinking about the way aloneness on stage signifies, in ways that are both similar and very different to traditional, multicharacter scene work.

* **THST 335a / AFST 435a, West African Dance: Traditional to Contemporary** Lacina Coulibaly

A practical and theoretical study of the traditional dances of Africa, focusing on those of Burkina Faso and their contemporary manifestations. Emphasis on rhythm, kinesthetic form, and gestural expression. The fusion of modern European dance and traditional African dance. Admission by audition during the first class meeting. HU RP

* **THST 339a, Advanced Performance Art Composition: Collaboration, Collusion, Collectivity** Staff

This advanced performance art composition course turns to processes of collaboration and collective authorship as a way to expand students’ performance practices. Students engage with the work of performance artists and theorists to investigate topics such as the politics of race, gender, and sexuality within collaborative artmaking; antagonism, affiliation, and collusion; consent and the politics of participation; working across loss and absence; and radical accessibility in collective artistic practice. It is both a seminar and a studio course—we read and discuss critical texts but our primary work is about making and showing interdisciplinary performances.

* **THST 340a, Ballet Now** Emily Coates and Daniel Ulbricht

A practical investigation of seminal ballets in the repertory of New York City Ballet. Tracing a sweeping history of artistic innovation from the early twentieth century to the present, this course covers the technique and aesthetic details that constitute New York City Ballet’s style and follow the ways that these stylistic strengths are applied and transformed in the contemporary ballets of the 21st century. Repertory excerpts

move through foundational works by George Balanchine and Jerome Robbins to ballets created in the past fifteen years by some of the most prominent ballet choreographers working today. Prior dance training required. Admission is by audition during the first class meeting. HU

* **THST 344a, *Natasha, Pierre, & the Comet of 1812*–Production Seminar** Annette Jolles

The course centers on the research, exploration, and preparation of Dave Molloy's *Natasha, Pierre, & the Great Comet of 1812*, culminating in a curricular production of the musical in December 2023. Research and the physical production—including design, staging, and detailed performance work—informed by the show's original source material, Leo Tolstoy's *War and Peace*, coupled with the styles, influences, and intentions that guided Molloy as the show's sole author. The text and score serve as the ultimate guide in a class that seeks to combine academic research with the multi-faceted process of mounting a musical. Course intended for actors, designers, directors, music directors, producers, stage managers, and dramaturgs. Enrollment is open to all Yale students. Actors by audition; other personnel by interview. All students are admitted by permission of the instructor. HU RP

* **THST 350a / AMST 350a / ER&M 319a / SAST 475a, *Drama in Diaspora: South Asian American Theater and Performance*** Shilarna Stokes

South Asian Americans have appeared on U.S. stages since the late nineteenth century, yet only in the last quarter century have plays and performances by South Asian Americans begun to dismantle dominant cultural representations of South Asian and South Asian American communities and to imagine new ways of belonging. This seminar introduces you to contemporary works of performance (plays, stand-up sets, multimedia events) written and created by U.S.-based artists of South Asian descent as well as artists of the South Asian diaspora whose works have had an impact on U.S. audiences. With awareness that the South Asian American diaspora comprises multiple, contested, and contingent identities, we investigate how artists have worked to manifest complex representations of South Asian Americans onstage, challenge institutional and professional norms, and navigate the perils and pleasures of becoming visible. No prior experience with or study of theater/performance required. Students in all years and majors welcome. HU

* **THST 370b / PLSH 248b, *Polish Theater and Its Traditions*** Krystyna Illakowicz
Exploration of the rebellious, defiant, and explosive nature of Polish theater, including ways in which theater has challenged, ridiculed, dissected, and disabled oppressive political power. Polish experimental and absurdist traditions that resulted from a merger of the artistic and the political; environmental and community traditions of the Reduta Theatre; Polish-American theater connections. Includes attendance at live theater events as well as meetings with Polish theater groups and actors. HU TR

* **THST 382a / MUSI 464a, *American Opera Today: Explorations of a Burgeoning Industry*** Gundula Kreuzer and Allison Chu

Contemporary opera constitutes one of the most vibrant sectors of classical music in the United States today. The past decade has seen a range of experimental performances that excitingly challenge stylistic and generic boundaries, and a widening spectrum of creators have been reaching to opera as a medium to center and (re)present stories of historically marginalized communities. Beyond introducing students to the richness of this new repertoire, the seminar addresses the broad socio-political and economic

currents underlying these recent changes in American opera, including institutional and funding structures; the role of PR, criticism, awards, and other taste-making agents; and cultural reckonings with systemic racism, engrained injustices, and white supremacy. A selection of recent operas or scenes – available as video recordings or audio files – allows us to explore aesthetic issues, such as narrative structures, diverse treatments of the (singing) voice, embodiment, interactivity, immersion, the role of digital media, mobility, site-specificity, and new online formats for opera. Students learn how to write about contemporary performances and works for which little scholarship is yet available; practice both public-facing and academic writing; recognize and critique contemporary canon-formation processes; and relate contemporary artistic practices to a larger institutional and economic ecosystem. At least one trip to the Metropolitan Opera is anticipated, for Anthony Davis and Thulani Davis' *X: The Life and Times of Malcolm X*. HU

* **THST 387a, Choreography in Practice and Theory** Lacina Coulibaly

A seminar and workshop in dance-theater composition. Focus on the history of dance composition, tools for generating and interpreting movement, basic choreographic devices, and dance in dialogue with media, music, and other art forms. Choreographic projects developed over the course of the term are presented in a final performance. Admission by application. May be repeated for credit. HU RP

* **THST 398a / ENGL 366a, American Experimental Theater** Marc Robinson

Topics include the Living Theater, Happenings, Cunningham/Cage, Open Theater, Judson Dance Theater, Grand Union, Bread and Puppet Theater, Ontological-Hysterical Theater, Meredith Monk, Mabou Mines, Robert Wilson, and the Wooster Group. Open to junior and senior Theater Studies majors, and to nonmajors with permission of the instructor. WR, HU

* **THST 401a, Conceptual Sound Design for Theater** Nathan Roberts

Theoretical and practical considerations for conceptual sound design, the creation of aural content and imagery in support of dramatic action. The use of sound to communicate meaning and intention effectively in a theatrical setting. Auditory culture and the phenomenology of hearing; the role of technology in sound design; development of critical listening skills and of a foundational vocabulary for the medium. Projects focus on the generation of content and ideas in support of a text. HU

* **THST 414a, Lyric Writing for Musical Theater** Dan Egan and Michael Korie

The craft of lyric writing in musical theater, opera, and crossover works. Both historical models and new composition used as objects of study. Analysis of song form and placement, and of lyric for character, tone, and diction. Creation of lyrics in context. Noted composers and lyricists of produced musical theater works join the class periodically to comment on the work created. Students also have the opportunity to conceive an original work of musical theater, a crossover work, or an opera libretto, and create portions of the score with original lyrics and music by student composers, with whom the writers will collaborate. Limited enrollment. Interested students should write to dan.egan@yale.edu for application requirements. May not be repeated for credit.

HU RP

* **THST 430a, Performing Publics** Shilarna Stokes

This course explores genres of political performance in which collective bodies, spaces, ideas, and stories come together, and in which the question of what it might mean to

identify as a collective body (public, community, nation, coalition) is at stake. Examples include performance genres with long histories such as festivals, protests, and rallies, as well as emerging genres such as school board meetings, knitting circles, and superfan gatherings. Reading across a range of fields including theater, dance, visual arts, and performance studies, we dwell on the question of how collective performances attempt to construct, contest, or transform collective imaginaries, we develop a shared set of analytical tools, and we put our heads together during research workshops designed to support each student's original research project. No prior experience in performance or performance theory is needed and students in all majors are welcome. HU

* **THST 438a, Theater and Therapy in the Aftermath of War** Elise Morrison
From the burgeoning field of Drama Therapy to the psychological basis of much actor training to the prevalence of theater productions being made with, for, and about people that have experienced wartime trauma, the practices of theater and therapy have long borrowed terminology, methodology, and conceptual frameworks from one another. This course traces the shared rhetoric and dramaturgical similarities between theater and psychotherapy, paying particular attention to how each/both are being applied to the global epidemic of post-traumatic stress in the aftermath of war. Students engage with contemporary practitioners of drama therapy, study recent theater productions created with and/or for combat veterans and refugees, and create their own research projects that explore the intersections of theater and therapy. HU

* **THST 452a, Acting: Constructing a Character** Gregory Wallace
A practical exploration of the internal and external preparation an actor must undergo to effectively render the moment-to-moment life of a given character. Focusing on monologues, scenes, and group explorations of text the class engages in a rigorous investigation of how the actor uses the self as the foundation for transformation. Course consists of close readings, research presentations, rehearsals and in-class scene presentations. Preference to senior and juniors. Open to non-majors. Limited enrollment. Admission by audition. See Syllabus page on Canvas for audition information and requirements. HU

* **THST 457a and THST 458b / AMST 463a and AMST 464b / EVST 463a and EVST 464b / FILM 455a and FILM 456b, Documentary Film Workshop** Charles Musser

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

* **THST 471a, Directed Independent Study** Shilarna Stokes
An independent study should generally conform to the standards and procedures of the senior project, THST 491, even when not undertaken by a senior. If the independent study is a performance or directing project, the adviser visits rehearsals and performances at the mutual convenience of adviser and student. The project must be accompanied by an essay of about fifteen pages, worth about half the final grade. Although the paper's requirements vary with the project and its adviser, it must be more than a rehearsal log. The paper typically engages interpretative and performance issues as revealed in other productions of the work (if they exist). The writing should be concomitant with rehearsal, to enable each to inform the other, and a draft must be presented to, and commented on by, the adviser at least a week before – not after – the final performance. The final version of the paper, incorporating adjustments

and reflections, should be turned in to the adviser no later than ten days after the performance closes, and no later than the first day of the final examination period. An essay project entails substantial reading, at least four meetings with the adviser, and a paper or papers totaling at least twenty pages. A playwriting project normally requires twenty new script pages every two weeks of the term and regular meetings with the adviser. A final draft of the entire script is the culmination of the term's work. Application forms are available from the director of undergraduate studies. Juniors may use one term of these courses to prepare for their senior projects. Open to juniors and seniors. Prerequisites: THST 210 and one seminar.

* **THST 491a, Senior Project in Theater Studies** Nathan Roberts and Dan Egan
Students must submit proposals for senior projects to the Theater Studies office by the deadline announced by the director of undergraduate studies. Attendance at weekly section meetings is required for all students undertaking production projects. Application forms are available in the Theater Studies office, 220 York St.

Tibetan (TBTN)

* **TBTN 110a, Elementary Classical Tibetan I** Staff

First half of a two-term introduction to classical Tibetan. The script and its Romanization, pronunciation, normative dictionary order, and basic grammar. Readings from Tibetan literature and philosophy. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1

* **TBTN 120b, Elementary Classical Tibetan II** Staff

Second half of a two-term introduction to classical Tibetan. The script and its Romanization, pronunciation, normative dictionary order, and basic grammar. Readings from Tibetan literature and philosophy. Prerequisite: TBTN 110. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2

* **TBTN 130a, Intermediate Classical Tibetan I** Staff

Continuation of TBTN 120. Introduction to more complex grammatical constructions. Further development of reading ability in various genres of Tibetan literature written prior to 1959. Prerequisite: TBTN 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

* **TBTN 140b, Intermediate Classical Tibetan II** Staff

Continuation of TBTN 130. Complex grammatical constructions. Further development of reading ability in various genres of Tibetan literature written prior to 1959. Prerequisite: TBTN 130 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

TBTN 150a, Advanced Classical Tibetan I Staff

This two-semester sequence, of which this class is the first half, is designed to assist students who already have the equivalent of at least two-years of Classical Tibetan language study. The course is intended to build on this foundation so that students gain greater proficiency in reading a variety of classical Tibetan writing styles and genres, including texts relevant to their research. The course readings focus primarily on texts written during the Ganden Phodrang period up through the 19th century. Over two semesters, the class covers three sets of materials: 1) famous or otherwise influential classical works (mostly historical, some literary); 2) important historical texts that have come to light in recent years but are scarcely known in western scholarship; and 3) classical language texts that support the research needs of enrolled students. Classical Tibetan grammar and other conventions are identified and discussed in the course of the readings. Prerequisite: TBTN 140, or equivalent. L5 RP

TBTN 160b, Advanced Classical Tibetan II Staff

This is the second half of the two-semester class that is designed to assist students who already have the equivalent of at least two-years of Classical Tibetan language study. The course is intended to build on this foundation so that students gain greater proficiency in reading a variety of classical Tibetan writing styles and genres, including texts relevant to their research. The course readings focus primarily on texts written during the Ganden Phodrang period up through the 19th century. Over the two semesters, the class covers three sets of materials: 1) famous or otherwise influential classical works (mostly historical, some literary); 2) important historical texts that have come to light in recent years but are scarcely known in western scholarship; and 3) classical language texts that support the research needs of the enrolled students. Classical Tibetan grammar and other conventions are identified and discussed in the course of the readings. Depending on student interest, we will draw from a range of historical and literary genres: poetry (*snyan ngag*), biographies (*rnam thar*), avadanas (*rtogs brjod*), religious histories (*chos 'byung*), administrative documents (*gzhung yig*), epistolary writings (e.g. *chab shog*), etc. Students also gain facility in kāvya-derived ornamental vocabulary and rhetorical devices. Prerequisite: L5, or equivalent. L5 RP

Turkish (TKSH)

TKSH 110a, Elementary Modern Turkish I Meryem Yalcin

Integration of basic listening, reading, speaking, and writing skills through a variety of functional, meaningful, and contextual activities. Students become active users of modern Turkish and gain a deeper understanding of Anatolian culture through lessons based on real-life situations and authentic materials. L1 1½ Course cr

TKSH 120b, Elementary Modern Turkish II Meryem Yalcin

Continuation of TKSH 110. Prerequisite: TKSH 110 or permission of instructor. L2 1½ Course cr

TKSH 130a, Intermediate Turkish I Meryem Yalcin

Continued study of modern Turkish, with emphasis on advanced syntax, vocabulary acquisition, and the beginnings of free oral and written expression. Prerequisite: TKSH 120 or permission of instructor. L3 1½ Course cr

TKSH 140b, Intermediate Turkish II Meryem Yalcin

Continuation of TKSH 130. Prerequisite: TKSH 130. L4 1½ Course cr

* **TKSH 231a / OTTM 231a, Ottoman Paleography and Diplomats** Ozgen Felek
 The Ottoman Empire, which stretched from North Africa to the Balkans, developed a highly complicated bureaucratic system, bequeathing an enormous amount of documents mainly written in Turkish with Arabic script. This course is a survey of the historical documents of the Ottoman Empire from the fifteenth to the twentieth centuries. It aims to introduce students to the various types of Ottoman documents and diplomatics as well as their features and characteristics. By reading handwritten samples, the students develop skills that enable them to understand the morphology and functions of these documents, such as *emr-i #erif*, *berât*, *hatt-ı hümmâyün*, *telhîs*, *irâde-i #erif*, *mektub*, *kâ'ime*, *hulasa*, *arzuahâl*, *mahzar*, *mazbata*, *hüccet*, *i'lâm*, *fetvâ*, *vakfiye* and *tezkires*. This helps students pursue independent works in Ottoman studies.
 Prerequisite: Knowledge of modern Turkish.

Twi (TWI)

Ukrainian (UKRN)

UKRN 110a, Elementary Ukrainian I Staff

The first half of a two-term introduction to Ukrainian for students with no previous knowledge of the language. Emphasis on speaking, reading, listening, and writing skills. Topics, vocabulary, and grammar lessons based on everyday linguistic interactions. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L1 RP 1½ Course cr

* **UKRN 120b, Elementary Ukrainian II** Staff

The second half of a two-term introduction to Ukrainian for students with no previous knowledge of the language. Emphasis on speaking, reading, listening, and writing skills. Topics, vocabulary, and grammar lessons based on everyday linguistic interactions. Prerequisite: UKRN 110. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L2 1½ Course cr

* **UKRN 130a, Intermediate Ukrainian I** Staff

Review and reinforcement of grammar fundamentals and of core vocabulary pertaining to common aspects of daily life. Special attention to verbal aspect and verbs of motion. Emphasis on continued development of oral and written communication skills on topics such as the self, family, studies and leisure, travel, and meals. Prerequisite: UKRN 120 or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L3 RP 1½ Course cr

* **UKRN 140b, Intermediate Ukrainian II** Staff

Continued review and reinforcement of grammar fundamentals and of core vocabulary pertaining to common aspects of daily life. Special attention to verbal aspect and verbs of motion. Emphasis on further development of oral and written communication skills on topics such as the self, family, studies and leisure, travel, and meals. UKRN 130 or equivalent. Course taught through distance learning using videoconferencing

technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L4 RP 1½ Course cr

*** UKRN 150a, Advanced Ukrainian I** Staff

The course is for students who wish to develop their mastery of Ukrainian. Original texts and other materials drawn from classical and contemporary Ukrainian literature, press, electronic media, film, and the Internet are designed to give students familiarity with linguistic features typical of such functional styles as written and spoken, formal and informal, scientific and newspaper language, jargon, slang, etc. Ukrainian 140, or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. L5 RP

UKRN 160b, Advanced Ukrainian II Staff

The course is for students who wish to develop their mastery of Ukrainian. Original texts and other materials drawn from classical and contemporary Ukrainian literature, press, electronic media, film, and the Internet are designed to give students familiarity with linguistic features typical of such functional styles as written and spoken, formal and informal, scientific and newspaper language, jargon, slang, etc. UKRN 150, or equivalent. Course taught through distance learning using videoconferencing technology from Columbia University. Enrollment limited; interested students should e-mail minjin.hashbat@yale.edu for more information. RP

Urban Studies (URBN)

URBN 200b / ARCH 200b, Scales of Design Bimal Mendis

Exploration of architecture and urbanism at multiple scales from the human to the world. Consideration of how design influences and shapes the material and conceptual spheres through four distinct subjects: the human, the building, the city, and the world. Examination of the role of architects, as designers, in constructing and shaping the inhabited and urban world. Lectures, readings, reviews and four assignments that address the spatial and visual ramifications of design. Not open to first-year students. Required for all Architecture majors. HU

URBN 280a / AMST 197a / ARCH 280a / HSAR 219a, American Architecture and Urbanism Elihu Rubin

Introduction to the study of buildings, architects, architectural styles, and urban landscapes, viewed in their economic, political, social, and cultural contexts, from precolonial times to the present. Topics include: public and private investment in the built environment; the history of housing in America; the organization of architectural practice; race, gender, ethnicity and the right to the city; the social and political nature of city building; and the transnational nature of American architecture. HU
o Course cr

*** URBN 303a / HIST 293a / RSEE 325a / RUSS 325a, Ten Eurasian Cities** Nariman Shelekpayev

This course explores histories and identities of ten cities in Northern and Central Eurasia. Its approach is based on an assumption that studying cities is crucial for an understanding of how societies developed on the territory of the Russian Empire, the Soviet Union, and post-Soviet states. The course is structured around the study of ten cities – Kyiv, Saint Petersburg, Moscow, Odesa, Baku, Magnitogorsk, Kharkiv,

Tashkent, Semey (former Semipalatinsk), and Nur-Sultan (former Astana) – that are located on the territory of modern Ukraine, Russia, Central Asia, and the Caucasus. We study these cities through the prism of various scholarly approaches, as well as historical and visual sources. Literary texts are used not only as a means to illustrate certain historical processes but as artifacts that were instrumental in creating the identity of these cities within and beyond their territories. The ultimate goal of the course is to acquaint all participants with the dynamics of social, cultural, and political development of the ten Eurasian cities, their urban layout and architectural features. The course also provides an overview of basic conceptual approaches to the study of cities and ongoing urbanization in Northern and Central Eurasia. HU, SO

URBN 304b / AFAM 164b / PLSC 263b, The Politics of "The Wire": HBO's Portrayal of the American City Allison Harris

This class uses HBO's groundbreaking series "The Wire" to investigate cities, their problems, and their politics. We watch all five seasons of the show as social scientists and use it to learn about important social scientific concepts and theories, and apply those theories to such phenomena as the politics of crime, policing, and local elections. Each week, the assigned readings – articles and book excerpts from political science as well as other social sciences – highlight the social scientific concepts displayed in the assigned episodes and provide context for lectures. All of the assignments work together to expose students to social science, how social science is conducted, and how political science can help us better understand the world around us. SO o Course cr

*** URBN 314a / ARCH 314a, History of Landscape in Western Europe and the United States: Antiquity to 1950** Warren Fuermann

This course is designed as an introductory survey of the history of landscape architecture and the wider, cultivated landscape in Western Europe and the United States from the Ancient Roman period to mid-twentieth century America. Included in the lectures, presented chronologically, are the gardens of Ancient Rome, medieval Europe, the early and late Italian Renaissance, 17th century France, 18th century Britain, 19th century Britain and America with its public and national parks, and mid-twentieth century America. The course focuses each week on one of these periods, analyzes in detail iconic gardens of the period, and places them within their historical and theoretical context. HU RP

*** URBN 318a / ER&M 344a / SOCY 344a, Informal Cities** Leigh-Anna Hidalgo
Newton

The informal sector is an integral and growing part of major global cities. With a special focus on the context of U.S. cities, students examine where a burgeoning informality is visible in the region's everyday life. How planners and policymakers address informality is an important social justice challenge. But what is the informal sector, or urban informality, or the informal city? This class addresses such questions through a rigorous examination of the growing body of literature from Sociology, Latinx Studies, Urban Planning, and Geography. We reflect on the debates and theories in the study of informality in the U.S. and beyond and gain an understanding of the prevalence, characteristics, rationale, advantages and disadvantages, and socio-spatial implications of informal cities. More specifically, we examine urban informality in work – examining street vendors, sex workers, and waste pickers – as well as housing, and the built environment. SO

* **URBN 319b / EVST 290b, Geographic Information Systems** Charles Tomlin

A practical introduction to the nature and use of geographic information systems (GIS) in environmental science and management. Applied techniques for the acquisition, creation, storage, management, visualization, animation, transformation, analysis, and synthesis of cartographic data in digital form.

* **URBN 327a / ARCH 327a, Difference and the City** Justin Moore

Four hundred and odd years after colonialism and racial capitalism brought twenty and odd people from Africa to the dispossessed indigenous land that would become the United States, the structures and systems that generate inequality and white supremacy persist. Our cities and their socioeconomic and built environments continue to exemplify *difference*. From housing and health to mobility and monuments, cities small and large, north and south, continue to demonstrate intractable disparities. The disparate impacts made apparent by the COVID-19 pandemic and the reinvigorated and global Black Lives Matter movement demanding change are remarkable. Change, of course, is another essential indicator of *difference* in urban environments, exemplified by the phenomena of disinvestment or gentrification. This course explores how issues like climate change and growing income inequality intersect with politics, culture, gender equality, immigration and migration, technology, and other considerations and forms of disruption.

* **URBN 341b / ARCH 341b / GLOB 253b / LAST 318b, Globalization Space** Staff

Infrastructure space as a primary medium of change in global polity. Networks of trade, energy, communication, transportation, spatial products, finance, management, and labor, as well as new strains of political opportunity that reside within their spatial disposition. Case studies include free zones and automated ports around the world, satellite urbanism in South Asia, high-speed rail in Japan and the Middle East, agripoles in southern Spain, fiber optic submarine cable in East Africa, spatial products of tourism in North Korea, and management platforms of the International Organization for Standardization. HU o Course cr

URBN 345a / ARCH 345a, Civic Art: Introduction to Urban Design Alan Plattus

Introduction to the history, analysis, and design of the urban landscape. Principles, processes, and contemporary theories of urban design; relationships between individual buildings, groups of buildings, and their larger physical and cultural contexts. Case studies from New Haven and other world cities. HU

* **URBN 360a / ARCH 360a, Urban Lab: An Urban World** Joyce Hsiang

Understanding the urban environment through methods of research, spatial analysis, and diverse means of representation that address historical, social, political, and environmental issues that consider design at the scale of the entire world. Through timelines, maps, diagrams, collages and film, students frame a unique spatial problem and speculate on urbanization at the global scale. Prerequisites: For non-majors: permission of the instructor is required. For ARCH majors: ARCH 150, 200, and 280. HU 1½ Course cr

* **URBN 417a / ARCH 325a, Marronage Practice: Architectures, Design Methods, and Urbanisms of Freedom** Ana Duran

This seminar introduces and explores Black, indigenous, and other historically marginalized modes of cultural production—collectively referred to here as “fugitive practices.” The course confronts the erasure (and re-centering) of these modes by

rethinking the episteme of architecture—questioning history, planning, and urbanism—but also of the body, the design of objects, and making. Modes of sociocultural and aesthetic production explored in the course may include: improvisation in jazz, hip-hop and social dance; textiles of the Modern African Diaspora and indigenous peoples; informal economies; ingenuity in vernacular architecture; and others. The course is structured around seven two-week “modules,” each containing a seminar discussion, a design exercise, and a short written accompaniment. It is conducted in collaboration with a parallel seminar being offered by faculty at Howard University. HU RP

* **URBN 442a / AFST 465a / ANTH 468a / HSHM 413a / URBN 400, Infrastructures of Empire: Control and (In)security in the Global South** Leslie Gross-Wyrtzen

This advanced seminar examines the role that infrastructure plays in producing uneven geographies of power historically and in the “colonial present” (Gregory 2006). After defining terms and exploring the ways that infrastructure has been conceptualized and studied, we analyze how different types of infrastructure (energy, roads, people, and so on) constitute the material and social world of empire. At the same time, infrastructure is not an uncontested arena: it often serves as a key site of political struggle or even enters the fray as an unruly actor itself, thus conditioning possibilities for anti-imperial and decolonial practice. The geographic focus of this course is the African continent, but we explore comparative cases in other regions of the majority and minority world. SO

* **URBN 490a or b / ARCH 490a or b, Senior Research Colloquium** Marta Caldeira
Research and writing colloquium for seniors in the Urban Studies and History, Theory, and Criticism tracks. Under guidance of the instructor and members of the Architecture faculty, students define their research proposals, shape a bibliography, improve research skills, and seek criticism of individual research agendas. Requirements include proposal drafts, comparative case study analyses, presentations to faculty, and the formation of a visual argument. Guest speakers and class trips to exhibitions, lectures, and special collections encourage use of Yale's resources.

Vietnamese (VIET)

VIET 110a, Elementary Vietnamese I Quang Van

Students acquire basic working ability in Vietnamese, developing skills in speaking, listening, writing (Roman script), and reading. Discussion of aspects of Vietnamese society and culture. Intended for students with no previous knowledge of Vietnamese.

L1 1½ Course cr

VIET 120b, Elementary Vietnamese II Quang Van

Continuation of VIET 110. L2 1½ Course cr

* **VIET 132a, Accelerated Vietnamese** Quang Van

This course follows a community-based language model designed for heritage students or speakers who comprehend and speak informal Vietnamese on topics related to everyday situations but do not read or write Vietnamese. Study of interpersonal, interpretive, and presentational communicative modes, as well as standard foreign language education (communication, cultures, connections, comparisons, and communities). Students will engage with Vietnamese American communities in New Haven and beyond. Admits to VIET 140. L3

* **VIET 142b, Accelerated Vietnamese II** Quang Van

An accelerated course designed for heritage students who wish to build a higher level of proficiency and develop sociocultural competence in speaking, reading, and writing. Topics include health care, rituals, community, linguistic landscape, education, mass communication, literature, history, values, and traditional and pop cultures. VIET 132 or equivalent. L4

* **VIET 160a, Advanced Vietnamese II** Quang Van

Aims to enable students to achieve greater fluency and accuracy in the language beyond the intermediate level and to solidify their reading, writing, speaking, and listening skills. Topics include socio-cultural practices, romantic love, healthcare, history, gender issues, pop music, and food culture. Prerequisite: L4 Vietnamese or equivalent. L5

* **VIET 470a and VIET 471b, Independent Tutorial** Quang Van

For students with advanced Vietnamese language skills who wish to engage in concentrated reading and research on material not otherwise offered in courses. The work must be supervised by an adviser and must terminate in a term paper or its equivalent. Permission to enroll requires submission of a detailed project proposal and its approval by the program adviser.

Wolof (WLOF)

Women's Gender and Sexuality Studies (WGSS)

* **WGSS 031a / AMST 031a, LGBTQ Spaces and Places** Terrell Herring

Overview of LGBTQ cultures and their relation to geography in literature, history, film, visual culture, and ethnography. Discussion topics include the historical emergence of urban communities; their tensions and intersections with rural locales; race, sexuality, gender, and suburbanization; and artistic visions of queer and trans places within the city and without. Emphasis is on the wide variety of U.S. metropolitan environments and regions, including New York City, Los Angeles, Miami, the Deep South, Appalachia, New England, and the Pacific Northwest. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.

HU

* **WGSS 032b, History of Sexuality** Maria Trumpler

Exploration of scientific and medical writings on sexuality over the past century. Focus on the tension between nature and culture in shaping theories, the construction of heterosexuality and homosexuality, the role of scientific studies in moral discourse, and the rise of sexology as a scientific discipline. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, HU

* **WGSS 036a / AMST 032a, Gender, Sexuality, and U.S. Empire** Talya Zemach-Bersin

This course explores the cultural history of America's relationship to the world across the long twentieth century with particular attention to the significance of gender, sexuality, and race. We locate U.S. culture and politics within an international dynamic, exposing the interrelatedness of domestic and foreign affairs. While exploring specific geopolitical events like the Spanish-American War, World War I and II, and the Cold War, this course emphasizes the political importance of culture and ideology rather than offering a formal overview of U.S. foreign policy. How have Americans across

the twentieth century drawn from ideas about gender to understand their country's relationship to the wider world? In what ways have gendered ideologies and gendered approaches to politics shaped America's performance on the world's stage? How have geopolitical events impacted the construction of race and gender on the home front? In the most general sense, this course is designed to encourage students to understand American cultural and gender history as the product of America's engagement with the world. In so doing, we explore the rise of U.S. global power as an enterprise deeply related to conceptions of race, sexuality, and gender. We also examine films, political speeches, visual culture, music, and popular culture. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. HU

*** WGSS 112a / HIST 112Ja, Early Histories of Sexuality** Caleb Knapp

This course examines histories of sexuality across a range of colonial and national contexts, including the British Caribbean, colonial Hawai'i, Mexico, and India, the U.S. South, and the North American West. It tracks how people thought about, regulated, and engaged in sex prior to the emergence of sexuality as a category of knowledge and explores the historiographical challenges of narrating histories of sex before sexuality. WR, HU

WGSS 125b / AFAM 115b, "We Interrupt this Program: The Multidimensional Histories of Queer and Trans Politics" Roderick Ferguson

In 1991, the arts organizations Visual AIDS and The Kitchen collaborated with video artist and filmmaker Charles Atlas to produce the live television broadcast "We Interrupt this Program." Part educational presentation, part performance piece, the show was aired in millions of homes across the nation. The program, in The Kitchen's words, "sought to feature voices that had often been marginalized within many discussions of AIDS, in particular people of color and women." This course builds upon and is inspired by this aspect of Atlas's visionary presentation, an aspect that used the show to produce a critically multicultural platform that could activate cultural histories and critical traditions from various communities. In effect, the course uses this aspect as a metonym for the racial, gender, sexual, and class heterogeneity of queer art and organizing. It conducts its investigation by looking at a variety of primary materials that illustrate the heterogeneous makeup of queer and trans politics. The course also draws on more recent texts and visual works that arose from the earlier contexts that the primary texts helped to illuminate and shape. HU RP o Course cr

WGSS 127a / ER&M 127a / EVST 127a / SOCY 127a, Health and Illness in Social Context Staff

Present-day medicine and health care provide solutions to an ever-increasing array of human problems. Yet the achievement of health can be elusive. This course provides a broad introduction to the domains of health and illness in the U.S., with some coverage of international trends and topics. Students analyze how our personal health and public health are shaped by social structures, political struggles, expert knowledge, and medical markets. Topics include the cultural and social meanings associated with health and illness; inequalities in health and health care access and provision; controversies surrounding healthcare, medical knowledge production, and medical decision-making; and the social institutions of the health care industry. None SO o Course cr

*** WGSS 135a / ER&M 356a, Latina/x/e Feminism** Deb Vargas

The course introduces students to Latina/x/e feminist theories. We focus on historical and contemporary writings by and about Chicana, Puerto Rican, Central American, and

other Latina/x/e feminist writers and activists. The course draws from interdisciplinary scholarship addressing the intellectual landscape of Latina/x/e and critical race feminist theories and social movement activist organizing. While this course approaches Latina/x/e feminist theories and activism as often having emerged in relation to U.S. nation-making projects we will consider this work with the understanding that projects of Latina/x/e feminism should be understood as cross-border, transnational, and multi-scalar critiques of nation-state violence. HU

WGSS 194a / ENGL 194a, Queer Modernisms Staff

Study of modernist literature and the historical formation of homosexual identity from the late nineteenth through mid-twentieth centuries. Topics include: sexology as a medical and disciplinary practice; decadence and theories of degeneration; the criminalization of homosexuality in the Wilde and Pemberton-Billing trials; cross-dressing and drag balls in Harlem; transsexuality and sex-reassignment surgery; lesbian periodical cultures; nightlife and cruising; gay Berlin and the rise of fascism; colonial narratives of same-sex desire; and the salon cultures of expatriate Paris. WR, HU o Course cr

*** WGSS 202a / AFAM 239a / AMST 461a / EDST 209a / ER&M 292a, Identity, Diversity, and Policy in U.S. Education** Craig Canfield

Introduction to critical theory (feminism, queer theory, critical race theory, disability studies, trans studies, indigenous studies) as a fundamental tool for understanding and critiquing identity, diversity, and policy in U.S. education. Exploration of identity politics and theory, as they figure in education policy. Methods for applying theory and interventions to interrogate issues in education. Application of theory and interventions to policy creation and reform. WR, HU

WGSS 204a / PLSC 203a, Women, Politics, and Policy Staff

This course is an introduction to the way gender structures how we interpret the political world, exploring topics such as women's access to power, descriptive and substantive representation, evaluation of the functioning of political institutions, and analysis of government policy. It also serves as an introduction to reading and producing empirical research on gender in the social sciences. SO o Course cr

*** WGSS 205b, Bodies and Pleasures, Sex and Genders** Regina Kunzel

This seminar explores questions of embodiment -- its pleasures, perplexities, and pains -- to interrogate sex, sexuality, and gender as analytical categories. Its aim is to evaluate formative concepts, theories, and debates within feminist, gender, and queer studies, critical race studies, and history. We will consider how terms like "women" and "men," "femininity" and "masculinity," "homosexuality" and "heterosexuality," and "gender" and "transgender" have structured people's experiences and perceptions of bodies -- their own and others'. We will interrogate the dynamic and often contested relationship between "gender" and sexuality," and their constitution through other axes of power and difference, including race, class, and (dis)ability. SO

*** WGSS 206a / ER&M 257a, Transnational Approaches to Gender & Sexuality** Evren Savci

Examination of transnational debates about gender and sexuality as they unfold in specific contexts. Gender as a category that can or cannot travel; feminist critiques of liberal rights paradigms; globalization of particular models of gender/queer advocacy; the role of NGOs in global debates about gender and sexuality. WR

WGSS 207a / PLSC 298a, Gender, Justice, Power, Institutions Staff

Welcome to *Gender, Justice, Power & Institutions*, a mouthful of abstractions that we work together to comprehend and critique throughout the semester. An aspiration of this course, as political as it is pedagogic, is that students approach their world-building projects with an enriched understanding of the ways gender, justice, and power shape and are shaped by institutions, inequality, and theory. Part I opens up some preliminary considerations of our course terms by investigating the case of abortion, abortion rights, and reproductive justice. The topic is politically loaded, philosophically complex, and emotionally challenging; the point is not to convince you of the permissibility or impermissibility of abortion, but to explore how the contested case configures, imbricates, and puts pressure on our course terms. In Part II, we examine the historical and conceptual coordinates of the course's first three titular terms: is gender a subjective identification, social ascription, or axis of inequality? Is justice a matter of redistribution, recognition, resources, capabilities, or something more hedonic? Where is power located, or where does it circulate? Who are what leverages power? In Part III, we consider ways gender, justice, and power travel within and across several institutions: heterosexuality, the university, the trafficking/anti-trafficking industrial complex, the prison, and the bathroom. Part IV closes out the course by focusing on the reconfiguration of democratic institutions in late modernity; or, can institutions "love us back" under the the political economy we shorthand as "neoliberalism"? SO TR o Course cr

*** WGSS 209a / CLCV 216a / LITR 239a / MGRK 216a, Dionysus in Modernity**

George Syrimis

Modernity's fascination with the myth of Dionysus. Questions of agency, identity and community, and psychological integrity and the modern constitution of the self. Manifestations of Dionysus in literature, anthropology, and music; the Apollonian-Dionysiac dichotomy; twentieth-century variations of these themes in psychoanalysis, surrealism, and magical realism. HU

*** WGSS 218b / AMST 218b, Sex, Gender, and American Moderns** Terrell Herring

What did being "modern" mean to those whose marginalized aesthetics negotiated sexual, racial, regional, national, and gender norms in the first half of the twentieth-century United States? This course functions as an intensive immersion into the creeds and concerns of recent scholarship regarding modes of U.S. modernity as the field overlaps with current forays into sexuality and gender studies. Via painting, photography, print culture, a "homosexual comedy," oral history and other resources, we discuss the popularization of heteronormativity in US sex manuals; the emergence of LGBTQ subcultures within and without urban East Coast environments; queer feminist agency through experimental photography in Provincetown; slumming and sensationalism in the Chicago Loop; and modern crip intimacies in Connecticut. Students meet the artists of the PaJaMa collective; James Weldon Johnson's *Ex-Colored Man*; avant-garde Pacific Rim poets such as José García Villa; a Nepali American surrealist; and a bohemian of the Harlem Renaissance whose drawings are held at the Beinecke. HU

*** WGSS 220b / PLSC 220b / PLSC S220b, Women & Politics** Andrea Aldrich

Exploration of theoretical and empirical work in political science to study the relationship between women and politics in the United States and around the world. Topics include women's descriptive and substantive representation in legislative and

executive branch politics in democratic regimes; the impact of gender stereotypes on elections and public opinion; conditions that impact the supply and demand of candidates across genders; and the underrepresentation of women in political institutions. WR, SO

*** WGSS 224a / ENGL 226a, Race and Gender in Transatlantic Literature, 1819 to the Present** Margaret Homans

Construction of race and gender in literatures of Great Britain, North America, and the Caribbean from the early nineteenth century to the present. Focus on the role of literature in advancing and contesting concepts of race and gender as features of identity and systems of power, with particular attention to the circulation of goods, people, ideas, and literary works among regions. Some authors include Charlotte Bronte, Sojourner Truth, Zora Neale Hurston, Virginia Woolf, Audre Lorde, Chimimanda Adichie, and Kabe Wilson. Second of a two-term sequence; each term may be taken independently. WR, HU

WGSS 230a / ANTH 230a, Evolutionary Biology of Women's Reproductive Lives

Claudia Valeggia

Evolutionary and biosocial perspectives on female reproductive lives. Physiological, ecological, and social aspects of women's development from puberty through menopause and aging, with special attention to reproductive processes such as pregnancy, birth, and lactation. Variation in female life histories in a variety of cultural and ecological settings. Examples from both traditional and modern societies. SC
o Course cr

*** WGSS 232a / AMST 233a / ER&M 286a, Porvinda: Latinx Queer Trans Life** Deb Vargas

This course provides an introduction to Latinx queer trans* studies. We approach the field of Latinx queer trans* studies as an ongoing political project that emerges from social justice activism, gay/lesbian/queer/trans studies, critical race feminism, cultural practitioners, among other work. We pay particular attention to the keywords "trans," "queer," "Chicanx," and "Latinx" by placing them in productive tension with each other through varied critical genealogies. HU, SO

*** WGSS 233a / FILM 341a / MGRK 238a, Weird Greek Wave Cinema** George Syrimis

The course examines the cinematic production of Greece in the last fifteen years or so and looks critically at the popular term "weird Greek wave" applied to it. Noted for their absurd tropes, bizarre narratives, and quirky characters, the films question and disturb traditional gender and social roles, as well as international viewers' expectations of national stereotypes of classical luminosity#the proverbial "Greek light" #Dionysian exuberance, or touristic leisure. Instead, these works frustrate not only a wholistic reading of Greece as a unified and coherent social construct, but also the physical or aesthetic pleasure of its landscape and its 'quaint' people with their insistence on grotesque, violent, or otherwise disturbing images or themes (incest, sexual otherness and violence, aggression, corporeality, and xenophobia). The course also pays particular attention on the economic and political climate of the Greek financial crisis during which these films are produced and consumed and to which they partake. None HU

*** WGSS 238a, Foucault and the Sexual Self** Igor De Souza

This course explores the main ideas and influence of Foucault's *History of Sexuality*. Alongside the methods and conclusions of the *HS*, we examine the implications of

the *HS* for feminist studies and queer theory, and the approach of the *HS* towards ancient Greek sexuality. HU

*** WGSS 245b / FILM 243b / MGRK 218b, Family in Greek Literature and Film**

George Syrimis

The structure and multiple appropriations of the family unit, with a focus on the Greek tradition. The influence of aesthetic forms, including folk literature, short stories, novels, and film, and of political ideologies such as nationalism, Marxism, and totalitarianism. Issues related to gender, sibling rivalry, dowries and other economic factors, political allegories, feminism, and sexual and social violence both within and beyond the family. WR, HU TR

*** WGSS 251a / ENGL 251a, Experiments in the Novel: The Eighteenth Century** Jill Campbell

The course provides an introduction to English-language novels of the long eighteenth century (1688–1818), the period in which the novel has traditionally been understood to have "risen." Emphasizing the experimental nature of novel-writing in this early period of its history, the course foregrounds persistent questions about the genre as well as a literary-historical survey: What is the status of fictional characters? How does narrative sequence impart political or moral implications? How do conventions of the novel form shape our experience of gender? What kind of being is a narrator? Likely authors include Aphra Behn, Daniel Defoe, Samuel Richardson, Henry Fielding, Laurence Sterne, Maria Edgeworth, Jane Austen, Jennifer Egan, Colson Whitehead, and Richard Powers. WR, HU

*** WGSS 260a, Food, Identity and Desire** Maria Trumpler

Exploration of how food—ingredients, cooking practices, and appetites—can intersect with gender, ethnicity, class, and national origin to produce profound experiences of identity and desire. Sources include memoir, cookbooks, movies, and fiction.

WGSS 272a / AMST 272a / ER&M 282a / HIST 183a, Asian American History, 1800 to the Present Staff

An introduction to the history of East, South, and Southeast Asian migrations and settlement to the United States from the late eighteenth century to the present. Major themes include labor migration, community formation, U.S. imperialism, legal exclusion, racial segregation, gender and sexuality, cultural representations, and political resistance. HU o Course cr

WGSS 291a / HIST 240a / RLST 347a / SOCY 331a, Sexual Minorities from Plato to the Enlightenment Staff

This interdisciplinary course surveys the history of homosexuality from a cross-cultural, comparative perspective. Students study contexts where homosexuality and sodomy were categorized, regulated, and persecuted and examine ancient and medieval constructions of same-sex desire in light of post-modern developments, challenging ideas around what is considered normal and/or natural. Ultimately, we ask: what has changed, and what has remained the same, in the history of homosexuality? What do gays and lesbians today have in common with pre-modern sodomites? Can this history help us ground or rethink our sexual selves and identities? Primary and secondary historical sources, some legal and religious sources, and texts in intellectual history are studied. Among the case studies for the course are ancient attitudes among Jews, early Christians, and Greeks; Christian theologians of the Middle Ages; Renaissance

Florence; the Inquisition in Iberia; colonial Latin America; and the Enlightenment's condemnation of sodomy by Montesquieu and Voltaire, and its defense by Bentham.

HU o Course cr

*** WGSS 293b / CLCV 319b / HIST 242Jb / MGRK 300b, The Olympic Games, Ancient and Modern** George Syrimis

Introduction to the history of the Olympic Games from antiquity to the present. The mythology of athletic events in ancient Greece and the ritual, political, and social ramifications of the actual competitions. The revival of the modern Olympic movement in 1896, the political investment of the Greek state at the time, and specific games as they illustrate the convergence of athletic cultures and sociopolitical transformations in the twentieth century. HU

*** WGSS 297b / HIST 418Jb, Gender Expression Before Modernity** Igor De Souza

What are the historical forms of gender non-conformity? This course investigates expressions of gender that were considered non-conforming within their historical contexts. Our point of departure is the idea that gender constitutes a "useful category of historical analysis" (Joan Scott). In this course we ask how deviant gender expression can be a category of historical analysis. How do we write history from the perspective of gender fluidity, non-binarism, and gender transgression? How can this history give us the tools to critique regnant norms of gender expression, then and now? How does this historical approach relate to trans* and non-binary people & movements today? The course is historically wide-ranging, from Antiquity to the Early Modern period, and geographically diverse, including Europe, the Middle East, and the colonial Americas. The breath of contexts enable us to consider broad patterns, continuities, and discontinuities. At the same time, we discuss the specificities of particular contexts, emphasizing the connection between gender fluidity/non-conformity, on the one hand, and local cultural norms around gender and sex, on the other. We investigate intellectual and cultural trends, as well as the lives of gender fluid/non-conforming individuals. We analyze sources drawn from law, medicine, religion, philosophy, visual arts & literature, biographies, and memoirs. All readings are in English translation. No prior background is required. However, it will be helpful to have taken either WGSS 291/HIST 287J or WGSS 306 before or in concurrence with this course. HU

*** WGSS 305a / AFAM 315a, Black Feminist Theory** Gail Lewis

This course is designed to introduce you to some of the major themes in black feminist theory. The course does so by presenting classic texts with more recent ones to give you a sense of the vibrancy of black feminist theory for addressing past and present concerns. Rather than interpret black feminist theory as a critical formation that simply puts race, gender, sexuality, and class into conversation with one another, the course apprehends that formation as one that produced epistemic shifts in how we understand politics, empire, history, the law, and literature. This is by no means an exhaustive list of the areas into which black feminism intervened. It is merely a sample of some of the most vibrant ideological and discursive contexts in which black feminism caused certain epistemic transformations. SO

WGSS 315a / PSYC 342a, Psychology of Gender Tariq Khan

This course explores the historical relationship between the "mind sciences" and dominant gender notions, ideologies, and norms. Students will critically examine the historical role that psychology and related fields have played in reinforcing and perpetuating things such as gender hierarchy, the gender binary, and the cis-hetero-

patriarchal nuclear family unit, among other things. Students will be introduced to works that illuminate the larger underlying social, political, and economic systems, institutions, and historical processes that are co-constitutive with these gender hierarchies, ideologies, and norms, with an emphasis on the role of psychology and related fields. Students will also learn about psychologists and related scientists and scholars whose work has challenged those systems and institutions toward a more emancipatory vision for the role of psychology in society, and how their work has shaped the field. None so

* **WGSS 321a / ANTH 321a / MMES 321a / SOCY 318a, Middle East Gender Studies**
Marcia Inhorn

The lives of women and men in the contemporary Middle East explored through a series of anthropological studies and documentary films. Competing discourses surrounding gender and politics, and the relation of such discourse to actual practices of everyday life. Feminism, Islamism, activism, and human rights; fertility, family, marriage, and sexuality. so

* **WGSS 325a or b / ER&M 324a or b, Asian Diasporas since 1800** Quan Tran
Examination of the diverse historical and contemporary experiences of people from East, South, and Southeast Asian ancestry living in the Americas, Australia, Africa, the Middle East, Asia, and Europe. Organized thematically and comparative in scope, topics include labor migrations, community formations, chain migrations, transnational connections, intergenerational dynamics, interracial and ethnic relations, popular cultures, and return migrations. HU, SO

* **WGSS 335a / AMST 336a, LGBTQ Life Spans** Terrell Herring
Interdisciplinary survey of LGBTQ life spans in the United States concentrating primarily on later life. Special attention paid to topics such as disability, aging, and ageism; queer and trans creative aging; longevity and life expectancy during the AIDS epidemic; intergenerational intimacy; age and activism; critiques of optimal aging; and the development of LGBTQ senior centers and affordable senior housing. We explore these topics across multiple contemporary genres: documentary film (*The Joneses*), graphic memoir (Alison Bechdel's *Fun Home*), poetry (Essex Hemphill's "Vital Signs"), fabulation (Saidiya Hartman's *Wayward Lives, Beautiful Experiments*), and oral history. We also review archival documents of later LGBTQ lives—ordinary and iconic—held at the Beinecke Rare Book and Manuscript Library as well as the Lesbian Herstory Archives. HU

* **WGSS 340b, Feminist and Queer Theory** Craig Canfield
Historical survey of feminist and queer theory from the Enlightenment to the present, with readings from key British, French, and American works. Focus on the foundations and development of contemporary theory. Shared intellectual origins and concepts, as well as divergences and conflicts, among different ways of approaching gender and sexuality. WR, HU

* **WGSS 343a / AFAM 352a / AMST 438a / ER&M 291a / LITR 295a, Caribbean Diasporic Literature** Fadila Habchi

An examination of contemporary literature written by Caribbean writers who have migrated to, or who journey between, different countries around the Atlantic rim. Focus on literature written in English in the twentieth and twenty-first centuries, both

fiction and nonfiction. Writers include Caryl Phillips, Nalo Hopkinson, and Jamaica Kincaid. HU

* **WGSS 362a / HUMS 191a / ITAL 340a / LITR 347a, Dangerous Women: Sirens, Singers, Poets and Singers from Sappho to Elena Ferrante** Jane Tylus

Was Sappho a feminist? This course tries to answer that question by analyzing how women's voices have been appropriated by the literary and cultural canon of the west—and how in turn women writers and readers have reappropriated those voices. Students read a generous amount of literary (and in some cases, musical) works, along with a variety of contemporary theoretical approaches so as to engage in conversation about authorship, classical reception, and materiality. Following an introduction to Greek and Roman texts key for problematic female figures such as sirens and sibyls, we turn to two later historical moments to explore how women artists have both broken out of and used the western canon, redefining genre, content, and style in literary creation writ large. How did Renaissance women such as Laura Cereta, Gaspara Stampa, and Sor Juana Inés de la Cruz fashion themselves as authors in light of the classical sources they had at hand? And once we arrive in the 20th and 21st centuries, how do Sibilla Aleramo, Elsa Morante, Anna Maria Ortese, and Elena Ferrante forge a new, feminist writing via classical, queer and/or animal viewpoints? HU

* **WGSS 372b / AMST 382b, Theory and Politics of Sexual Consent** Joseph Fischel
Political, legal, and feminist theory and critiques of the concept of sexual consent. Topics such as sex work, nonnormative sex, and sex across age differences explored through film, autobiography, literature, queer commentary, and legal theory. U.S. and Connecticut legal cases regarding sexual violence and assault. SO RP

* **WGSS 381a / AFAM 397a / ER&M 380a, New Developments in Global African Diaspora Studies** Fatima El-Tayeb

This course traces recent developments in African Diaspora Theory, among them Afropessimism, Queer of Color Critique, Black Trans Studies and Afropolitanism. We pay particular attention to interactions between theory, art, and activism. The scope is transnational with a focus on, but not restricted to, the Anglophone Diaspora. Each session roughly follows this structure: One theoretical text representing a recent development in African diaspora studies, one earlier key text that the reading builds on, one theoretical text that does not necessarily fall under the category of diaspora studies but speaks to our topic and one text that relates to the topic but uses a non-theoretical format. Students are expected to develop their own thematically related project over the course of the semester. Preference give to juniors and seniors. Email instructor for more information. HU, SO

* **WGSS 388b / AFAM 349b / AMST 326b / HIST 115Jb, Civil Rights and Women's Liberation** Crystal Feimster

The dynamic relationship between the civil rights movement and the women's liberation movement from 1940 to the present. When and how the two movements overlapped, intersected, and diverged. The variety of ways in which African Americans and women campaigned for equal rights. Topics include World War II, freedom summer, black power, the Equal Rights Amendment, feminism, abortion, affirmative action, and gay rights. HU

* **WGSS 398a, Junior Research Seminar** Dara Strolovitch

An interdisciplinary approach to studying gender and sexuality. Exploration of a range of relevant theoretical frameworks and methodologies. Prepares students for the senior essay. WR, SO

* **WGSS 408a / AMST 345a / ER&M 409a, Latinx Ethnography** Ana Ramos-Zayas
 Consideration of ethnography within the genealogy and intellectual traditions of Latinx Studies. Topics include: questions of knowledge production and epistemological traditions in Latin America and U.S. Latino communities; conceptions of migration, transnationalism, and space; perspectives on “(il)legality” and criminalization; labor, wealth, and class identities; contextual understandings of gender and sexuality; theorizations of affect and intimate lives; and the politics of race and inequality under white liberalism and conservatism in the United States. SO

* **WGSS 412a / EAST 411a / HSAR 415a, Women and Art in Premodern East Asia**
 Staff

For over a thousand years, women in East Asia profoundly influenced the development of the visual arts, yet their formidable presence remains largely hidden. This seminar explores the critical roles women played as patrons, artists, and collectors of the arts in China, Korea, and Japan. We cover periods from the sixth through the nineteenth centuries and discuss a wide array of mediums including bamboo paintings, bijinga woodblock prints, bronze Buddhist sculptures, bojagi textiles, and even embroidered lotus shoes. This seminar focuses particularly on art objects made by anonymous women as a means to rethink and problematize the traditionally elite and male-dominated art historical canon. We also contextualize artistic production in light of emergent theorizations and readings on femininity, feminism, and the sexual politics of representation. Major themes of inquiry include subjectivity and intentionality; representations of women and the male gaze; and postcolonial definitions of female agency. No prior knowledge of East Asian art history is required or assumed. HU TR

* **WGSS 416a / ER&M 335a / FREN 416a, Social Mobility and Migration** Morgane Cadieu

The seminar examines the representation of upward mobility, social demotion, and interclass encounters in contemporary French literature and cinema, with an emphasis on the interaction between social class and literary style. Topics include emancipation and determinism; inequality, precarity, and class struggle; social mobility and migration; the intersectionality of class, race, gender, and sexuality; labor and the workplace; homecomings; mixed couples; and adoption. Works by Nobel Prize winner Annie Ernaux and her peers (Éribon, Gay, Harchi, Linhart, Louis, NDiaye, Taïa). Films by Cantet, Chou, and Diop. Theoretical excerpts by Berlant, Bourdieu, and Rancière. Students will have the option to put the French corpus in dialogue with the literature of other countries. Conducted in French. HU

* **WGSS 438a, Subjectivity and its Discontents: Psychosocial Explorations in Black, Feminist, Queer** Gail Lewis

Questions of subjectivity stand at the base of much feminist, black, queer scholarship yet how subjectivity is constituted, whether it is fixed or fluid, how it links to narratives of experience, and how it can be apprehended in critical inquiry is often left implicit. Beginning with a brief consideration of psychoanalytic conceptions of ‘the subject’, ‘subjectivity’ and their relation to social formations, this course examines some of the ways in which subjectivity has been theorized and brought under critical scrutiny by

black diasporic, feminist and queer scholars. It draws on work produced in reference to multiple sites, including the UK, the USA and the Caribbean within the fields of psychoanalysis, social science, the humanities and critical art practice. It aims to critique the divide between ‘interior’ psychic life and ‘exterior’ social selves, as well as considering the relation between ‘freedom’ and subjectivity, including the extent to which ‘freedom’ might require rejection of ‘subjectivity’ as a mode of personhood. so

* **WGSS 463b / AMST 462b / ER&M 462b, The Study of Privilege in the Americas**
Ana Ramos-Zayas

Examination of inequality, not only through experiences of the poor and marginal, but also through institutions, beliefs, social norms, and everyday practices of the privileged. Topics include: critical examination of key concepts like “studying up,” “elite,” and “privilege,” as well as variations in forms of capital; institutional sites of privilege (elite prep schools, Wall Street); living spaces and social networks (gated communities, private clubs); privilege in intersectional contexts (privilege and race, class, and gender); and everyday practices of intimacy and affect that characterize, solidify, and promote privilege. so

* **WGSS 490a, The Senior Colloquium** Dara Strolovitch

A research seminar taken during the senior year. Students with diverse research interests and experience discuss common problems and tactics in doing independent research.

* **WGSS 491a, The Senior Essay** Eda Pepi

Independent research on, and writing of, the senior essay.

Yoruba (YORU)

YORU 110a, Beginning Yorùbá I Oluseye Adesola

Training and practice in speaking, listening, reading, and writing. Initial emphasis is on the spoken aspect, with special attention to unfamiliar consonantal sounds, nasal vowels, and tone, using isolated phrases, set conversational pieces, and simple dialogues. Multimedia materials provide audio practice and cultural information. L1
1½ Course cr

YORU 120b, Beginning Yorùbá II Oluseye Adesola

Continuing practice in using and recognizing tone through dialogues. More emphasis is placed on simple cultural texts and role playing. Prerequisite: YORU 110. L2
1½ Course cr

YORU 130a, Intermediate Yorùbá I Oluseye Adesola

Refinement of students' speaking, listening, reading, and writing skills. More natural texts are provided to prepare students for work in literary, language, and cultural studies as well as for a functional use of Yorùbá. After YORU 120. L3 1½ Course cr

YORU 140b, Intermediate Yorùbá II Oluseye Adesola

Students are exposed to more idiomatic use of the language in a variety of interactions, including occupational, social, religious, and educational. Cultural documents include literary and nonliterary texts. After YORU 130. L4 1½ Course cr

YORU 150a, Advanced Yorùbá I Oluseye Adesola

An advanced course intended to improve students' aural and reading comprehension as well as speaking and writing skills. Emphasis on acquiring a command of idiomatic

usage and stylistic nuance. Study materials include literary and nonliterary texts; social, political, and popular entertainment media such as movies and recorded poems (*ewi*); and music. After YORU 140. L5

YORU 160b, Advanced Yorùbá II Oluseye Adesola

Continuing development of students' aural and reading comprehension and speaking and writing skills, with emphasis on idiomatic usage and stylistic nuance. Study materials are selected to reflect research interests of the students. After YORU 150. L5

YORU 170a, Topics in Yorùbá Literature and Culture Oluseye Adesola

Advanced readings and discussion concerning Yorùbá literature and culture. Focus on Yorùbá history, poetry, novels, movies, dramas, and oral folklore, especially from Nigeria. Insight into Yorùbá philosophy and ways of life. Prerequisite: YORU 160. L5, HU

YORU 172b, Topics in Yorùbá Literature and Culture II Oluseye Adesola

Continuation of YORU 170. After YORU 170. L5, HU

Zulu (ZULU)

ZULU 110a, Beginning isiZulu I Nandipa Sipengane

A beginning course in conversational isiZulu, using Web-based materials filmed in South Africa. Emphasis on the sounds of the language, including clicks and tonal variation, and on the words and structures needed for initial social interaction. Brief dialogues concern everyday activities; aspects of contemporary Zulu culture are introduced through readings and documentaries in English. L1 1½ Course cr

ZULU 120b, Beginning isiZulu II Staff

Development of communication skills through dialogues and role play. Texts and songs are drawn from traditional and popular literature. Students research daily life in selected areas of South Africa. Prerequisite: ZULU 110. L2 1½ Course cr

ZULU 130a, Intermediate isiZulu I Nandipa Sipengane

Development of fluency in speaking, listening, reading, and writing, using Web-based materials filmed in South Africa. Students describe and narrate spoken and written paragraphs. Review of morphology; concentration on tense and aspect. Materials are drawn from contemporary popular culture, folklore, and mass media. After ZULU 120. L3 1½ Course cr

ZULU 140b, Intermediate isiZulu II Staff

Students read longer texts from popular media as well as myths and folktales. Prepares students for initial research involving interaction with speakers of isiZulu in South Africa and for the study of oral and literary genres. After ZULU 130. L4 1½ Course cr

* **ZULU 150a, Advanced isiZulu I** Nandipa Sipengane

Development of fluency in using idioms, speaking about abstract concepts, and voicing preferences and opinions. Excerpts from oral genres, short stories, and television dramas. Introduction to other South African languages and to issues of standardization, dialect, and language attitude. After ZULU 140. Course includes students from Cornell University via videoconference. L5

* **ZULU 160b, Advanced isiZulu II** Staff

Readings may include short stories, a novel, praise poetry, historical texts, or contemporary political speeches, depending on student interests. Study of issues of

language policy and use in contemporary South Africa; introduction to the Soweto dialect of isiZulu. Students are prepared for extended research in South Africa involving interviews with isiZulu speakers. After ZULU 150. Course includes students from Cornell University via videoconference. L5

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YALE UNIVERSITY CAMPUS SOUTH & YALE MEDICAL CENTER



The University is committed to affirmative action under law in employment of women, minority group members, individuals with disabilities, and protected veterans. Additionally, in accordance with Yale's Policy Against Discrimination and Harassment (<https://your.yale.edu/policies-procedures/9000-yale-university-policy-against-discrimination-and-harassment>), Yale does not discriminate in admissions, educational programs, or employment against any individual on account of that individual's sex; sexual orientation; gender identity or expression; race; color; national or ethnic origin; religion; age; disability; status as a special disabled veteran, veteran of the Vietnam era, or other covered veteran; or membership in any other protected classes as set forth in Connecticut and federal law.

Inquiries concerning these policies may be referred to the Office of Institutional Equity and Access, 203.432.0849; equity@yale.edu. For additional information, please visit <https://oiea.yale.edu>.

Title IX of the Education Amendments of 1972 protects people from sex discrimination in educational programs and activities at institutions that receive federal financial assistance. Questions regarding Title IX may be referred to the University's Title IX Coordinator, Elizabeth Conklin, at 203.432.6854 or at titleix@yale.edu, or to the U.S. Department of Education, Office for Civil Rights, 8th Floor, 5 Post Office Square, Boston MA 02109-3921; tel. 617.289.0111, TDD 800.877.8339, or ocr.boston@ed.gov. For additional information, including information on Yale's sexual misconduct policies and a list of resources available to Yale community members with concerns about sexual misconduct, please visit <https://smr.yale.edu>.

In accordance with federal and state law, the University maintains information on security policies and procedures and prepares an annual campus security and fire safety report containing three years' worth of campus crime statistics and security policy statements, fire safety information, and a description of where students, faculty, and staff should go to report crimes. The fire safety section of the annual report contains information on current fire safety practices and any fires that occurred within on-campus student housing facilities. Upon request to the Yale Police Department at 203.432.4400, the University will provide this information to any applicant for admission, or to prospective students and employees. The report is also posted on Yale's Public Safety website; please visit <http://publicsafety.yale.edu>.

In accordance with federal law, the University prepares an annual report on participation rates, financial support, and other information regarding men's and women's intercollegiate athletic programs. Upon request to the Director of Athletics, PO Box 208216, New Haven CT 06520-8216, 203.432.1414, the University will provide its annual report to any student or prospective student. The Equity in Athletics Disclosure Act (EADA) report is also available online at <http://ope.ed.gov/athletics>.

For all other matters related to admission to Yale College, please write to the Office of Undergraduate Admissions, Yale University, PO Box 208234, New Haven CT 06520-8234; telephone, 203.432.9300; website, <http://admissions.yale.edu>.

Yale University's website is www.yale.edu; the Yale College Programs of Study is online at <http://catalog.yale.edu/ycps>.

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