Directory of Major Roadmaps

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AFST African Studies

AMST American Studies

AMTH Applied Mathematics

ANTH Anthropology

BENG Biomedical Engineering
CGSC Cognitive Science

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CPLT Comparative Literature
CPSC Computer Science

<u>CPSC & MATH</u> Computer Science and Mathematics <u>E&EB</u> Ecology and Evolutionary Biology

EAST East Asian Studies

ECON Economics

ECON & MATH Economics and Mathematics

ENGL English

EP&E Ethics, Politics and Economics
ER&M Ethnicity, Race, and Migration

EVST Environmental Studies
FILM Film and Media Studies

FREN French
GLBL Global Affairs
GMAN German Studies

HIST History
HSAR History of Art

<u>HSHM</u> History of Science, Medicine, and Public Health

HUMS Humanities

ITAL Italian Studies

LING Linguistics

MATH Mathematics

MB&B Molecular Biophysics and Biochemistry

MCDB Molecular, Cellular, and Developmental Biology

MENG Mechanical Engineering

NSCI Neuroscience
PHIL Philosophy
PHYS Physics

PLSC Political Science
PSYC Psychology

Russian, East European, and Eurasian Studies

RUSS Russian

<u>S&DS</u> Statistics and Data Science

SOCY Sociology Spanish

TDPS Theater, Dance, and Performance Studies
WGSS Women's, Gender, and Sexuality Studies

African American Studies Degree B.A. Offered **African American Studies** Prerequisites for entering the None major 12 term courses (incl senior reqs) AFAM 1160 AFAM 1162 Requirements 1 humanities course in African American literature, approved by DUS 1 social science course relevant to African American studies, approved by DUS 5 courses in area of focus, approved by DUS **Junior Seminar** AFAM 4310 Senior Colloquium AFAM 4380 Senior Requirements **Senior Essay** AFAM 4391 **Substitutions** Relevant course with permission of DUS

Updated March 2025

	African Studies
Degree Offered	B.A. African Studies
Prerequisites	None
	12 term courses (incl senior requirement)
	1 AFST Course (Humanties) & 1 AFST Course (Social Sciences)
Requirements for degree	4 courses in area of focus
	4 courses in an African language
	1 Research Methods seminar (AFST 5505 or another research methods course in area of focus)
Senior Requirements	AFST 4491, Senior Essay Undated March 2025

Updated March 2025

American Studies

Degrees Offered

B.A. American Studies B.A. American Studies (Intensive)

Prerequisites

None

14 term courses

(including senior reqs)

4 gateway courses

(AMST 1000-2999)

2 in cultural history/cultural studies 1 American Literature survey course 1 prep course for area of concentration to include 1 designated "Early Americas" in YCS

Requirements for each degree

5 courses in area of concentration

(national formations; the international United States; material cultures and built environments; politics and American communities; visual, audio, literary, and performance cultures; public humanities), 1 course must be on a related non-U.S. topic

2 AMST elective courses

2 junior seminars (AMST 3000-3999), at least 1 in concentration

Senior Requirements 1 senior seminar in concentration (AMST 4000-4999) or

1 term senior project or essay (AMST 4491) **Independent Project** (AMST 4493 and 4494)

Substitution

First-Year Seminar for gateway course, with DUS permission

Updated February 2025

Applied Mathematics

Degrees Offered

BA Applied Mathematics BS Applied Mathematics

Prerequisites
for entering the
major

Requirements

for each degree

MATH 1200 or ENAS 1510; MATH 2220 or MATH 2250 or MATH 2260, or equivalents; ENAS 1300 or CPSC 1001

11 term courses beyond prereqs (incl senior req)

14 term courses beyond prereqs (incl senior req)

1 differential equations course, ENAS 1940 or MATH 2460

1 probability course, S&DS 2410 or S&DS 2380

1 data analysis course, S&DS 3610 or S&DS 2300

1 discrete mathematics course, AMTH 2440 or CPSC 2020

3 adv courses in an area of concentration involving applied mathematics

3 courses in areas listed in item 5 of the overview page

4 courses in areas listed in item 5 of the overview page

1 addtl vector analysis course, as specified

1 addtl 3000-level or higher course

Senior Requirement

Senior thesis research project AMTH 4910

Updated April 2025

Anthropology

Degree Offered

B.A. Anthropology

Prerequisite

None

12 course credits (incl senior req) Concentrations optional

At least 1 intro or intermediate (1000-2000 level) course in each of 3 subfields

Degree Requirements At least 3 advanced (3000-4000 level) courses, not incl ANTH 4071, ANTH 4091, or seminar senior essay

2 ANTH electives

Of the 12 course credits, at least 9 must be ANTH courses, including senior requirement Remaining courses can include 2 or 3 cognate courses in other departments or programs with DUS approval

Senior Requirements One-term Senior Essay (in adv seminar or ANTH 4091) OR Two-term Senior Essay

(ANTH 4071 and ANTH 4091)

Substitutions

1 study abroad course for 1 ANTH elective, with DUS approval

Updated March 2025

Biomedical Engineering

Degree Offered

B.S. Biomedical Engineering

Prerequisites
for entering the
major

BIOL 1010 and 1020, or higher level course in MCDB or MB&B with DUS permission; CHEM 1610 or higher

MATH 1150 or 1160 (not necessary if placed into MATH 1200 or ENAS 1510);

MATH 1200 or ENAS 1510;

ENAS 1940 or higher with DUS permission

PHYS 1800, 1810, 2050L, and 2060L (or PHYS 1650L and 1660L with DUS permission)

13 term courses

(for at least 11 credits), beyond prereqs (incl senior req) students must fulfill the requirements of 1 concentration

BENG 2800, 2080, 3200, 3600, 3400, 3500, 3100, 3110, 4080

Requirements

Bioimaging

3 of following courses: BENG 4104, 4106, 4410, 4440, 4450, 4849, 4475, 4476, or 4485

Biomechanics and Mechanobiology

3 of following courses: MENG 1105, 3422, BENG 4104, 4106, 4410, 4622, 4560, or 4580

Biomolecular Engineering

3 of following courses: BENG 4104, 4106, 4410, 4611, 4622, 4350, 4630, 4261, 4767, 4680, 4690, MENG 3422

Systems Biology

3 of following courses: BENG 4104, 4106, 4410, 4611, 4622, 4350, 4630, 4261, 4767, 4680, 4690, MENG 3422

Senior Requirements

BENG 2080 (.5 credit sophomore year)

BENG 4080 (.5 credit senior year)

Senior Project (BENG 4974 or BENG 4973 and 4974)

Substitutions

Relevant course with DUS permission

Updated March 2025

Cognitive Science

Degrees Offered

B.A. Cognitive Science

B.S. Cognitive Science

Prerequisites for entering the major

Requirements for each degree

CGSC 1110

15 term courses,

for a total of 13.5 course credits (including prereq and senior req)

CGSC 3950 (.5 credit Junior colloquium)

1 course from 4 of the following 6 subfields:

Computer Science (CPSC 2010)

Economics and Decision Making (ECON 2159)

Linguistics (LING 1100, 1160, 1300, 1179, 2320, 2530)

Neuroscience (MCDB 3200, NSCI 3400, PSYC 1600 or 2670)

Philosophy (PHIL 1126, 1182, 2269, 2270, 2271)

Psychology (PSYC 1100, S139E, 1400)

6 courses in a specific topic or area at 3000 or higher level

1 skills course (CPSC 1120, 2020, LING 2249, PSYC 2100, 2670, S&DS 1000, 1030, 1060, 2200, 2300, and S107E, or another course with DUS permission); PSYC 2100 preferred for B.S. students

Senior Requirements CGSC 4800 and 4810 (Nonempirical senior essay)

CGSC 4900 and 4910 (Empirical research and senior essay)

Updated April 2025

	Chemistry				
Degrees Offered	B.A. Chemistry	B.S. Chemistry	B.S. Chemistry (Intensive Major)	B.S./M.S. Chemistry	
	СНЕМ 1	CHEM 1610 and 1650 or CHEM 1700 (CHEM 1630 and 1670 are not offered in AY 2025-2026); CHEM 1340L and 1360L, or CHEM 1710L			
Prerequisites for entering the	MATH 1150	or 1160 (MATH 1200 or M	ATH 1210 or ENAS 1510 at	re encouraged)	
major	PHYS 1700, 1800, 2	PHYS 2000, 20 or PHYS 1700, 1800, 2000, or 2600 or equivalents in advanced placement PHYS 2600, 20 or PHYS 4000 or h (with DUS approximately support to the property of the physical property of the			
	10 credits (beyond prereqs)	13 credits (beyond prereqs)	15 credits (beyond prereqs)	19 credits (beyond prereqs) (B.S. Intensive requirements + 4 addtl grad courses)	
	2 terms Organic Chemistry (with Labs) CHEM 1740 or 2200; CHEM 1750, 2210, or 2300; CHEM 2220L and 2230L		Application by end of 5th term		
Requirements for each degree	n/a	Physical Chemistry CHEM 3320 or 3280 CHEM 3330; CHEM 3300L (B.S. & B.S. Intensive Major only)		2 terms of CHEM 4900 taken in 5th and 6th semesters	
		Inorganic Chemistry CHEM 2520		Research between Jr/Sr year	
	n/	/a	1 additional PHYS course numbered 1700 or higher	Advanced course credits	
	4 additional advanced course credits, course credits		5 additional advanced course credits, incl at least 2 lectures and 1 lab	include 8 grad courses (4 applied to the B.S.)	
Senior Requirements	CHEM 4000	CHEM 4900 (2 semesters) or CHEM 4000 and additional advanced lecture or lab	CHEM 4900 (2 semesters)	4 Research Semesters (incl 2 terms of CHEM 9900)	
Substitutions	Up to 2 credits of relevant advanced science courses in other departments for advanced chemistry courses (with DUS permission)		N/A		

Comparative Literature

Degree Offered	

BA Comparative Literature

Prerequisite for entering the major

None

12 term courses (including senior req)

Concentrations

BA Literature & Comparative Cultures Concentration

BA Literary Translation Concentration

BA Intensive Language Concentration

BA Film Concentration

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CPLT 1300 and 1 from CPLT 1400, 1430, or 3048 CPLT 1300 and CPLT 3048 (or equivalent)

CPLT 1300 and CPLT 1400 CPLT 1300 and CPLT 1430 (or equivalent)

Requirements

for each concentration

Period Requirement

At least 1 course in three of five historical periods: Antiquity, Medieval, Early Modern, 19th Century, 20th-21st Centuries

"In-Language" Literature Requirement

2-3 courses (depending on concentration) in a language other than English.

1 L4, but remaining courses (1 or 2) must be L5 level

Theory Requirement

1 course that involves literary or cultural theory (see DUS for course list) Film concentration students must take one FILM theory course

2 electives

2 electives that engage with translation or translation studies 2 electives in second foreign literature (one at L5 level) 3 electives from Film and Media Studies department

Senior Requirements

One-term Senior Essay (CPLT 4910) or Two-term Senior Essay (CPLT 4920 and 4930)

Substitutions

DUS may approve one advanced language class in lieu of 1 non-English literature course

Computer Science Degrees BA BS Offered **Computer Science Computer Science** Prerequisites None None for entering the major 10 term courses 12 term courses **CPSC 2010** Requirements CPSC 2020 or MATH 2440 for each degree CPSC 2230, 3230, and CPSC 3650 or CPSC 3660 4 intermediate or advanced 6 intermediate or advanced CPSC courses CPSC courses Senior **Senior Project** Requirements **CPSC 4900** Advanced courses in other departments **Substitutions** with DUS permission

Updated April 2025

Computer Science and Mathematics

De	gre	ees
Of	fer	ed

BS Computer Science and Mathematics

Prerequisites for entering the major

None

14 term courses (6 in CPSC, 8 in MATH), not incl senior requirement

CPSC 2010, CPSC 2230, and CPSC 3230

1 from CPSC 3650 or CPSC 3660

Requirements for degree

1 adv CPSC course with significant mathematical content

1 adv CPSC course other than CPSC 4900

MATH 1200

MATH 2250 or MATH 2260

MATH 2440

5 additional MATH courses numbered 2250-4690 (may not include MATH 4700, or MATH 4800-4890)

Senior Requirements

CPSC 4900 or MATH 4750

Updated April 2025

Ecology and Evolutionary Biology

Degrees Offered	B.S. Ecology and Evolutionary Biology Concentrations: Biodiversity and the Environment, or Organismal Biology	B.A. Ecology and Evolutionary Biology Concentration: Biodiversity and the Environment	B.A. Ecology and Evolutionary Biology Concentration: Organismal Biology	
		Intro Biology sequence (BIOL 1010, 1020, 1030, and 1040)		
	2 term lecture sequence in General Chemistry (CHEM 1610, 1650 or CHEM 1630, 1670) with labs (CHEM 1340L, 1360L)			
		nathematics or 1 term of statistics & dat ATH 1160 or MATH 1200 or S&DS 10		
Prerequisites for entering the major	CHEM 1740 or 2200 CHEM 1750 or 2210 CHEM 2220L CHEM 2230L EPS 1100 EPS 2120 EPS 2200 EPS 2220 EPS 2320 EPS 2400 EPS 2550			
	B. S. Degree 5.5 course credits (not incl prereqs or senior req)	B.A. Degree 3.5 course credits (not incl prereqs or senior req)	B.A. Degree 3.5 course credits (not incl prereqs or senior req)	
Requirements	Same as B.A. degree requirements (either concentration).	EEB 2220	EEB 2290 and 2291L	
for each degree	Two electives, at least one elective must be a lecture or a seminar.	EEB 2225	EEB 2295 or BENG 3200	
		1 course from EEB 2246-2272 with lab or EEB 3326 and 3327L	MCDB 3000 or MB&B 3000	
Senior Requirements	2 terms original research (EEB 4475, 4476) or (EEB 4495, 4496)	1 term independent study (EEB 4470) or Senior Essay in a course	1 term independent study (EEB 4470) or Senior Essay in a course	
Substitutions	Substitutions permitted with DUS approval (see YCPS for details).			

East Asian Studies

Degrees Offered B.A. East Asian Studies

Prerequisites for entering the major

L2 level of an East Asian language

Requirements
for each degree

13 course credits beyond the prereq (incl senior req)

6 East Asian language courses, incl 1 term at L4 level and 2 terms at L5 level with readings in the language

6 courses in country or area of focus, incl 1 in premodern period and 2 sems

1 course on East Asia outside country or area of focus

Senior Requirements Senior sem related to country or area of focus (senior thesis)

or

EAST 4900 (1-term senior essay)

or

EAST 4910, 4920 (2-term senior research project)

Updated March 2025

Economics

Degree Offered

B.A. Economics

Prerequisite

None

12 term courses (including math req and senior req)

Introductory microeconomics (ECON 1108, 1110, or 1115, or extra elective if placed out)

Introductory macroeconomics (ECON 1111 or 1116, or extra elective if placed out)

Distribution of courses

Intermediate micro (ECON 2121 or 2125);

Intermediate macro (ECON 2122 or 2126);

Econometrics (ECON 1117 or 2123 or 2136)

4 ECON electives (any ECON courses numbered 1159 or above, if not already applied toward core requirements)

One math course:

MATH 1180 or 1200 (preferred)

or

MATH 1100/1110 (counts as 1 credit),

MATH 1120, 1150, 1160, ENAS 1510,

or

any MATH course numbered 2000 or higher

Senior Requirement

2 ECON courses numbered 4400-4491, at least 1 taken in senior year

Substitutions

1 related course in another department (with DUS approval)

Updated March 2025

Economics and Mathematics

Degree Offered

BA Economics and Mathematics

Prerequisites for entering the major

MATH 1200 and ECON 1110 or ECON 1115 and ECON 1111 or ECON 1116

12 courses beyond the prereqs, incl senior requirement

7 ECON courses at level 2120 or above and 5 MATH courses numbered above 2250, excluding MATH 4700, MATH 2410, and MATH 2420

ECON 2125 or ECON 2121

ECON 2126 or ECON 2122

ECON 2135 and ECON 2136

ECON 3351 or ECON 4425

One of ECON 3350, ECON 4417, or ECON 4433

1 additional economics course

MATH 2250 or MATH 2260 and MATH 2550 or MATH 2560 and

2 additional MATH courses numbered above 2250 (excluding MATH 4700)

Senior Requirements

Requirements

for degree

MATH 4800 or MATH 4810, or ECON Theory Seminar

(optional: senior essay in economics)

Substitutions

S&DS 2410 and S&DS 2420 for ECON 2135, with permission of ECON DUS

Updated March 2025

	English		
Degrees Offered	English Standard Major	BA English Creative Writing Concentration	
Prerequisites for entering the major	None		
	14 courses (incl senior requirement)	15 courses (incl senior requirement)	
	3 foundational co ENGL 1025, 1026	urses chosen from 5, 1027, and 1028	
	in each of four h Medieval, R		
Requirements for each degree	1 junior seminar		
	No more than 5 courses numbered ENGL 1014-1030		
	No more than 2 creative writing courses	4 creative writing courses, including at least 2 advanced (4000-level; previously numbered 451 or higher); 1 in same genre as 4400; and 1 in another genre.	
		At least 11 literature courses	
Senior Requirements	2 senior seminars or 1 senior seminar and 1 one-term Senior Essay (ENGL 4100) or 1 two-term Senior Essay	1 senior seminar or 1 one-term Senior Essay (ENGL 4100) and Creative Writing Concentration	
	(ENGL 4100 and 4101)	Senior Project (ENGL 4400)	
Substitutions	DRST 0001 and 0002 or ENGL 1029 and 1030 may substitute for one foundational course; 2 upper-level courses with overlapping material may substitute for one foundational course with DUS permission;		
Substitutions	Up to 2 relevant courses in other departments may substitute for electives in the major; Residential College Seminars may substitute for electives in the major. DUS permission required.		

Ethics, Politics, and Economics

Degree Offe	erec
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B.A. Ethics, Politics, and Economics

Introductory Requirements

1 course from each of 8 categories:

- (1) Ethics (PHIL 1175 or DS*)
- (2) Other Perspectives (from ANTH, ER&M, HIST, SOCY, WGSS, or DS*)
- (3) Political Philosophy (PHIL 1178, PLSC 1327, 1335, 1352, or DS*)
- *2 terms of DS fulfills introductory requirements (1) thru (3)
- (4) Intro Political Science course (1 of PLSC 1113, 1222, or 1413)
- (5) Intro Microeconomics (1 of ECON 1108, 1110, or 1115)
- (6) Intro Macroeconomics (ECON 1111 or 1116)
- (7) Econometrics (1 of ECON 1117, 2123, 2135, GLBL 2121, S&DS 2300 or 2380)
- (8) Game Theory (1 of EP&E 4220, 4231, 4295, 4297, or ECON 2159)

15 term courses

(incl intro reqs & senior req)

ECON 2121 or ECON 2125

Requirements for each degree

3 core seminars including:

1 from the Classics series of EP&E (EP&E 3212, 3213, 3214, 3215, 3216, or 3217) and

2 additional seminars in 2 of 3 core areas (Ethics, Politics, Economics), 1 of which must be an advanced seminar

3 courses in area of concentration (includes senior req course)

Senior Requirements

Senior Essay in area of concentration

(Advanced seminar; EP&E 4491; or EP&E 4492 and 4493)

Updated March 2025

Ethnicity, Race, and Migration

B.A. Degree Offered Ethnicity, Race, and Migration **Prerequisites** for entering the None major 12 term courses (incl senior req) ER&M 2000 and 3000 Requirements for each degree 6 courses in area of interest, 1 of which must be a methods course 2 electives with DUS approval **Senior Colloquium** Senior Essay in (ER&M 4091) upper-level seminar Senior and and or Requirements **Senior Essay or Project** one additional (ER&M 4092) upper-level seminar

Updated April 2025

	Environmental Studies			
Degrees Offered	B.A.	B.S.		
Prerequisites for entering the major	None	1 natural science lab or field course focusing on research and analytical methods MATH 1120 or higher or PHYS 1700 or higher or S&DS 1000 or higher or Completion of the Certificate in Data Science Two-term lecture sequence in chemistry or CHEM 1670 or higher BIOL 1010, 1020, 1030, and 1040 or EPS 1250		
14 course credits (incl senior project) 6 core courses 1 in S&DS 1000 or higher or 1 in MATH 1100/1110 taken together, or MATH 1120 or higher; 2 in social sciences or humanities;		12 course credits (beyond prereqs, incl senior project) 4 core courses 2 in humanities or social sciences; 2 in natural sciences		
for each degree	3 in natural sciences 6 courses in concentration including 1 adv seminar (2000 level or higher)	6 courses in concentration 3 courses with SC (science) designation, with 2 numbered 1250 or higher; 2 courses that provide interdisciplinary context; 1 related elective		
Senior Requirements	One-term senior essay (EVST 4960) and advanced seminar or Two-term research project	Two terms of EVST 4960		

Film and Media Studies

BA BA Degrees Film and Media Studies Film and Media Studies Offered **Intensive Major** Prerequisites for entering the None major 12 courses, incl senior req FILM 1501 FILM 1601 FILM 3201 1 upper-level national or world cinema course Requirements for each degree 1 upper-level critical studies course 1 production course 4 electives Two terms of Two terms of Senior essay Senior essay Senior and Requirements Senior project in production Senior project in production

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Requirements)

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(see Summary of Major

Requirements)

French

Degrees Offered	BA Standard Major	BA Standard Major Translation Concentration	BA Intensive Major	BA Intensive Major Translation Concentration
Prerequisite for entering the major		FREN 1500	or equivalent	
	10 term courses num (incl senior req,		12 term courses num (incl senior req,	bered 1600 or above but not prereq)
	FREN 1700 or equivalent			
At least 4 courses in Group B numbered 2000 or above		-	At least 5 courses in Group B numbered 2000 or above	
Requirements for each degree	No more than 2 courses numbered FREN 1800–1999	No more than 4 courses numbered FREN 1800–1999	No more than 2 courses numbered FREN 1800–1999	No more than 4 courses numbered FREN 1800–1999
		Minimum of 2 courses on translation, not including the senior translation thesis		Minimum of 2 courses on translation, not including the senior translation thesis
		1 pre-180	00 course	
	No more than 2 courses conducted in English			
Senior Requirements	One-term senior thesis in French or English (FREN 4910)	One-term senior translation thesis from French to English (FREN 4920)	One-term (FREN 4910) or two-term (FREN 4930 and FREN 4940) senior thesis in French or English	One-term (FREN 4920) or two-term (FREN 4950 and FREN 4960) senior translation thesis from French to English
Substitutions	With prior approval of DUS, up to 4 term courses outside Yale French Department			

Global Affairs

Degree Offered

B.A. Global Affairs

Prerequisites

None

14 course credits

(including senior req; excluding language req)

GLBL 2121, 2122, and 3101

ECON 1108, 1110, or 1115

ECON 1111 or 1116

Requirements

2 PLSC courses from different subdisciplines

PLSC 1113 (international relations)
PLSC 1413 (comparative politics)
or
1 from PLSC 1327, 1335, or 1352 (political theory)

1 course from: ECON 2121, ECON 2122, GLBL 2159/ECON 2159, or an approved qualitative methods course

2 History courses

3 approved electives (approved by DUS)

Senior Requirements

Senior Project

GLBL 4499 or GLBL 4500 or

approved senior seminar

Language Requirement

Advanced ability (L4) in 1 modern language other than English

Substitutions

GLBL 2121 may be replaced by other approved analysis courses

Updated March 2025

German Studies

Degree Offered

B.A. German Studies

Prerequisites

for entering the major

First- and second-year German or the equivalent

Requirements for each degree

10 term courses beyond the prereq and including the senior req

1 GMAN course in the 1500s

1 GMAN course in the 1600s

1 GMAN course in the 1700s

6 electives numbered GMAN 1600 and above

Senior Requirements

Senior Essay GMAN 4920

or

GMAN 4920 and 4930 (intensive major)

Substitutions

Substitutions and exceptions with DUS permission

Updated March 2025

History B.A. B.A. Degrees History History Offered **Specialist Concentration Global Concentration** Prerequisites 2 term courses in History for entering the major 12 term courses (including prereqs and senior req) 2 courses in preindustrial history 2 departmental seminar courses Requirements for each degree 5 courses in specific 1 course in 5 of the 6 region or pathway geographical regions (Africa, Asia, Europe, Latin America, Middle 2 courses outside East, U.S.) for a total of 5 region or pathway; courses overall coursework must include 3 regions Two-term senior essay or project (HIST 4995 and 4996) Senior Requirements One-term senior essay (HIST 4997) 1 or 2 non-departmental courses Substitution (with DUS permission)

Updated March 2025

History of Art B.A. Degree Offered **History of Art** Prerequisites None 12 term courses (incl senior req) HSAR 4401 2 courses at 1000 level 6 courses numbered above 2000, including: Requirements 2 seminars at 3500-4497 level 4 geograpical categories and 4 chronological categories 2 Electives Senior **HSAR 4499** Requirement 2 electives Substitutions from related departments with DUS permission Updated March 2025

History of Science, Medicine, and Public Health

Degree Offered B.A. History of Science, Medicine, and Public Health

Prerequisite

Requirements for each degree

None

12 course credits (including senior req)

7 courses in concentration:

2 HSHM courses

1 seminar in HSHM or HIST taken before senior year

3 related electives from any dep (approved by faculty adviser)

1 full-credit science course (approved by faculty adviser)

3 additional HSHM electives, including 1 seminar and 1 course outside major concentration

Senior Requirements

Yearlong project (HSHM 4900, 4910)

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Humanities

B.A. Degree Offered Humanities Prerequisites None 14 term courses (incl senior req) 2 core Modernities seminars 2 core Interpretations seminars 2 core Traditions lectures or seminars Requirements 1 course in each of 4 areas for the degree - Literature - Visual, musical, or dramatic arts - Science in the humanities - Intellectual history and historical analysis 3 electives related to area of focus (with DUS approval) 1 intellectual journal entry per term Senior **Senior Essay**

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1 or 2 terms of HUMS 4910

Requirements

Italian Studies

Degree Offered

B.A. Italian

Prerequisites for entering the major

Requirements

ITAL 1300 or equivalent

11 term courses beyond prereqs (including senior req)

8 courses numbered ITAL 1400 or above, at least 5 of which must be taught in Italian, including:

ITAL 1400 or equivalent through placement test

ITAL 1500 or 1510;

ITAL 4162 or 4172;

ITAL 1310 (with the Italian discussion section);

4 additional Italian electives (or 5 if placement test waives ITAL 1400)

2 elective courses in other langs and lits, history of art, history, linguistics, philosophy or media, with DUS approval

Maximum of 3 Italian courses taught in English

Senior Requirements

ITAL 4491 Senior Essay and final meeting with faculty

Substitutions

Graduate courses in other departments with DUS approval

Updated March 2025

Linguistics

Degree Offered

B.A. Linguistics

Prerequisites for entering the major

Requirements

for each degree

None

12 term courses

(including the senior requirement)

1 foundational area course in phonology (LING 2320) and

1 foundational area course in syntax (LING 2530)

Breadth requirement

At least 1 course in two of six remaining foundational areas of linguistics:

Computational linguistics, historical linguistics, language and mind/brain, morphology, phonetics, semantics/pragmatics

Depth requirement

2 courses beyond the introductory level in one of the eight foundational areas

Electives

4 linguistics courses, with at least one at 2000 level or above

Research requirement

LING 4900

Senior Requirement

Senior Essay LING 4910

Substitutions

Electives may be chosen from language-related offerings in other departments, with DUS permission

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Mathematics

Degrees Offered

B.A. Mathematics

B.S. Mathematics

Prerequisite

MATH 1150 or equivalent

Requirements for each degree

10 term courses

numbered 2250 or higher (excluding MATH 4700), incl senior req

12 term courses

numbered 2250 or higher (excluding MATH 4700) incl same reqs as B.A. degree with 2 addtl advanced courses in physical science

Introductory Sequence

MATH 2250 or 2260 and MATH 2550 or 2560 and MATH 3020 or 1200

MATH 3500 and MATH 3050 or MATH 3100

3 courses marked with a **YC MATH Distribution** attribute in YCS

Senior Requirements Senior Seminar (MATH 4800 through MATH 4890)

or

Senior Essay (MATH 4750)

with DUS permission

Intensive <u>M</u>ajor Required courses must include:

MATH 3050

MATH 3100

MATH 3500

2 MATH grad courses level 5000 through 5999 or equivalent independent study courses

Substitutions Permitted (up to 2 courses) With permission of the DUS, certain courses in Applied Mathematics, Computer Science, Engineering and Applied Science, Economics, Philosophy, Physics, Statistics and Data Science, or other departments, may be counted toward the required MATH courses

Updated February 2025

Molecular Biophysics and Biochemistry

Degrees Offered	B.A.	B.S.	B.S./M.S.		
Introductory Courses	General chemistry: CHEM 1610, 1650, or CHEM 1630, 1670, with CHEM 1340L, 1360L Organic chemistry: CHEM 2200 or 1740 with CHEM 2220L Calculus: MATH 1120 and MATH 1150 or MATH 1160 Biology: BIOL 1010, 1020, and for certain concentrations, BIOL 1030, 1040				
	9.5 course credits including senior req 12.5 course credits including senior req including senior req				
	(3 credits) PHYS 1700, 1710 (or higher) and MB&B 2750 or CHEM 3320	Biophysics (4 credits) PHYS 1700, 1710 (or higher) and MB&B 2750 or CHEM 3320 and 1 elective 3000+	(4 credits) PHYS 1800, 1810 (or higher) and CHEM 3320 and 1 elective 3000+ as directed		
	Biochemistry (3 credits) MB&B 3000, 3010 CHEM 1750 or any CHEM 2000+				
Requirements for each degree	Science and Society Core (1/2 credit minimum) MB&B 2680 or others as approved by DUS				
	1 credit from different categories with at least 0.5 credits from MB&B	Practical Skills Electives 2 credits from different categories with at least 0.5 credits from MB&B	1 credit MB&B 4700 or 4710 completed by end of fifth term as part of senior req		
	(1 credit) 1 MB&B elective at 2000+ level	Seminar and Lecture Electives (2 credits) 1 x MB&B elective at 2000+ level and either 1 addtl MB&B elective at 2000+ level or Lecture course in STEM	(6 credits) 2 x MB&B electives at 5000+ level 4 x STEM electives at 5000+ level		
Concentrations	Concentrations (optional) Faculty curated sets of electives for students choosing to concentrate in Biochemistry; Biophysics and Structural Biology; Chemical Biology; Computational Biology and Bioinformatics; Environment and Climate Change; Medicine. Some concentrations require BIOL 1030/1040. Some require 1-3 additional credits. More specifice concentration reqs found Concentrations tab in YCPS.				
Senior Requirements	Senior Project (1 term) MB&B 4900 or MB&B 4910 MB&B 5700 and 5701				

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Molecular, Cellular, and Developmental Biology

Degrees Offered	B.A.	B.S.	B.S. Intensive	B.S./M.S.
	BIOL 1010, 1020, 1030, and 1040 (See MCDB Prerequisites on the Program Overview page)			
		1 course in MATH o S&DS course at Yale	r	
Prerequisites for entering the major	2-term lecture sequence in CHEM	2-term lecture sequence in CHEM + 2 Labs		
	1 term in PHYS 1700 or higher	2	2 terms PHYS 1700 or higher	
		1	term organic CHEM + 1 Lab	
	5.5 course credits beyond preregs	9 course credits beyond prereqs	11 course credits beyond preregs	14 course credits beyond prereqs (consult DUS)
Requirements	2 core courses from MCDB 2000, 2020, 2050, 2100, 2900, 3000 (or MB&B 3000)	3 core courses from MCDB 2000, 2020, 2050, 2100, 2900, 3000 (or MB&B 3000)		
for each degree	1 bioscience lab 2 MCDB labs			
	2 general elective MCDB courses numbered 2500 and above or 2 additional core courses 4 graduate-level electives, one of which must be grad seminar with DUS approval			
	1 specia	l elective from MCDB 3500 or	r higher	
Senior Requirements	Senior Essay or 1 term of research in MCDB 4750	MCDB 4850, 4860	MCDB 4950, 4960	MCDB 5850 (junior spring) MCDB 5950, 5960 (senior year) (6 credits)
	Biotechnology: Same B.A. or B.S. requirements; MCDB 3700; 1 elective from MCDB 3500 or higher; 1 elective from MB&B 4200, 4430, BENG 3600, 3400, 4410, 4350, 4630, 4685, CENG 2100, 4110, 4120L, CPSC 4381, 4391, 4700, or 4750			
Concentration Requirements	Neurobiology: Same B.A. or B.S. requirements; MCDB 3200; 1 elective from MCDB 3500 or higher; 1 elective from BENG 4410, CPSC 4750, MCDB 2500, 3100, 3150, 3610, 4150, 4250, 4300, 4400, PSYC 3376, or S&DS 1010			
Quantitative Biology: Same B.A. or B.S. requirements; MCDB 3310; 1 elective from MCDB 3500 or higher; 1 elective from MCDB 3200, 3610, 4610, BENG 4630, 4767, CPSC 4371, 4750, MB&B 4350, 3520, 5230, PHYS 4020, MATH 2460, 2510, or CPSC 4750, 437				· · · · · · · · · · · · · · · · · · ·

Mechanical Engineering

Degrees Offered	B.S. Mechanical Engineering	B.S. Engineering Sciences (Mechanical)	B.A. Engineering Sciences (Mechanical)	
	MATH 1120 and 1150			
	PHYS 1800, 1810 or PHYS 2000, 2010		PHYS 1700, 1710 or higher	
Prerequisites for entering the		i 1510 ivalent		
major	2 labs: 1 from PHYS 1650L or 2050L; 1 from PHYS 1660L or 2060L, or equivalents	2 labs: 1 from PHYS 1650L or 2050L; 1 from PHYS 1660L or 2060L, or MENG 2616L		
	1 term course in chemistry numbered CHEM 1610 or higher			
	20 term courses beyond prereqs (incl senior req)	12 term courses beyond prereqs (incl senior project)	8 term courses beyond prereqs (incl senior req)	
	ENAS 1300 and 1940		Consult with DUS.	
	ECE 2000	Consult with DUS.		
Requirements for each degree	MATH 2220 or 2250			
	MENG 1105, 2511, 2311, 2615, 2616L, 3125, 3422, 3423L, 3323, 3424, 3020L			
	3 technical electives chosen in consultation with DUS (only one of MENG 4991 or MENG 4992)			
Senior Requirements	MENG 4137L and MENG 4138L (taken in senior year)	MENG 4104 or MENG 4991 or MENG 4992 or another upper-level design course chosen in consultation with DUS	MENG 4991 or MENG 4992 or another upper-level design course chosen in consultation with DUS	
Substitutions	Relevant course with DUS permission			

Neuroscience

Degrees Offered

B.A. Neuroscience B.S. Neuroscience

Prerequisites for entering the major BIOL 1010, 1020, 1030, and 1040

One of S&DS 1030, 1050, 2300, 2380, or PSYC 2100

18.5 courses

(including prereqs and senior req)

and NCSI 3200

1 lab course, chosen from NSCI 2280L, 2290L, 2400, 2580, 2600, 2700, 3210L, PSYC 2538

Requirements for each degree

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

(no more than 2 from other allied core courses)

Senior Requirements 2 credits in nonempirical research

(NSCI 4800 and 4810)

or

1 credit in empirical research

(NSCI 4900 or 4910)

and

1 credit in nonempirical research (NSCI 4800 or 4810) 2 credits in empirical research (NSCI 4900 and 4910)

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Philosoph	y
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Degrees Offered	BA Philosophy Standard Major	BA Philosophy Psychology concentration
Prerequisites for entering the major	2 introductory or intermediate courses in PHIL	2 courses in PHIL or PSYC
	12 term courses, incl prereqs and senior req	12 term courses, incl prereqs and senior req
	2 courses in metaphysics and epistemology	5 courses in psychology, including PSYC 1100 7 philosophy courses
	3 courses in the history of philosophy, to include	2 courses in the history of philosophy
Requirements for each degree	PHIL 1125 and PHIL 1126 or DRST 0003 and DRST 0004	PHIL 1125 and PHIL 1126 or DRST 0003 and DRST 0004 suggested
	2 ethics and value theory courses	2 seminars, one of which may be from the Psychology department
	1 logic course	1 logic course PHIL 1115 suggested
	2 PHIL sems at the 3000-level or above, both of which may fulfill the senior req	2 int or adv courses in the intersection of PHIL and PSYC, 1 must be a philosophy seminar and may fulfill the senior requirement
Senior Requirements	Third sem in PHIL or One- or two-term independent project (PHIL 4490, 4491)	Third sem in PHIL or One- or two-term independent project (PHIL 4490, 4491)
Substitutions	2 related courses in other depts, with DUS permission	2 related courses in other depts, with DUS permission

	Physics			
Degrees Offered	B.S. Physics	B.S. Physics (Intensive)		
Prerequisites for entering the major	PHYS 1700, 1710 or 1800, 1810 or 2000, 2010 or 2600, 2610 with Math coreqs; PHYS 2050L or PHYS 1650L, 1660L			
	9 courses for 8.5 credits (including senior req)	11 courses for 10.5 credits (including senior req)		
	PHYS 4000 or other advanced math course			
Requirements for each degree	PHYS 4010, 4020 and either PHYS 4390 or 4400 (in sequence)	PHYS 4100, 4300 and PHYS 4390 or 4400 and PHYS 4410 and PHYS 4500 (in sequence as specified)		
	PHYS 2060L or equivalent	PHYS 2060L and 4450L or equivalent		
	3 advanced electives (numbered 3000 or higher) with DUS approval	1 advanced elective (numbered 3000 or higher) with DUS approval		
Senior Requirements	PHYS 4710 or 4720 or equivalent	Two terms of PHYS 4710 or 4720 or equivalent		

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	Folitical Science				
Degrees Offered	B.A. Political Science	B.A. Political Science Intensive	B.A. Political Science Interdisciplinary		
Prerequisites for entering the major	None				
	12 courses	15 courses	12 courses		
		Apply in November of junior year	Apply before November recess in final year		
		2 intro PLSC courses			
		2 non-intro core lecture courses			
Requirements for each degree	1 course in methodology and formal theory subfield				
	2 courses each in 2 of the international relations, political philosophy, as	2 courses each in 2 of the five subfields (incl methodology and formal theory)			
		2 departmental seminars, one in senior year			
		PLSC 4900 in spring of junior year	7 of the required courses must relate to chosen concentration		
		1 addtl elective to total 15 req courses			
Senior Requirements	1-term essay in seminar or PLSC 4900 or 2-term essay in PLSC 4900, 4901	2-term essay in PLSC 4901, 4903	1-term essay in seminar or PLSC 4900 or 2-term essay in PLSC 4900, 4901		
Substitutions	2 courses from other departments (with DUS approval)		3 courses from other departments (with DUS approval)		

Political Science

	Psychology			
Degrees Offered	B.A. Psychology	B.S. Psychology	B.A. or B.S. Psychology Neuroscience concentration	
Prerequisite for entering the major	PSYC 1100 or Score of 5 on PSYC AP test or Score of 7 on IB PSYC exam			
	12 courses be incl ser	13 or 15 courses beyond prereqs, incl senior req and 2-term BIOL sequence (BIOL 1010-1040) if necessary		
	(sea Inclu	2 social science courses in Psychology (search YC PSYC Social Science on YCS) Including at least 1 social science core course (search YC PSYC Social Science Core on YCS)		
Requirements	2 natural science co (search YC PSYC Nat Including at least 1 nat (search YC PSYC Natura	2 natural science courses: PSYC 1600 and 1 addtl natural science course indicated by YC PSYC Natural Science on YCS		
for each degree	1 statistics course: S&DS 1000 or S&DS 2300 (may substitute S&DS 1230 with DUS permission)			
	At least 1 research methods requirement (PSYC 2100–2990)		Data-collection/research methods course (search YC PSYC NSCI Track RsrchMthds on YCS) chosen from PSYC 2600, 2538, 2700, 2658 or 2670. Substitutions with DUS approval	
	4 PSYC electives Up to 3 relevant credits outside of PSYC with DUS permission (rare)		2 advanced science courses (search YC PSYC NSCI Track Adv Scie on YCS)	
Senior Requirements	2 nonempirical courses or 1 empirical & 1 nonempirical research course •1 course from PSYC 4000- 4890, or PSYC 4990, taken sr. year •1 additional course from PSYC 4000-4990	2 empirical research courses • PSYC 4990 taken senior year • 1 addtl course from PSYC 4000-4990	2 courses designated as YC PSYC NSCI Track Senior Sem on YCS (B.S. majors must take PSYC 4990 for neuroscientific empirical project)	
Substitutions	Advanced courses in other departments with DUS permission			

Russian, East European, and Eurasian Studies

Degree Offered	B.A. Russian, East European, and Eurasian Studies	B.A. Russian, East European, and Eurasian Studies
Concentrations	East European Studies or Eurasian concentration	Russian Studies concentration
Prerequisites for entering the major	2 semesters of the first-year sequence in East European <i>or</i> Eurasian language, or equivalent	RUSS 1400, 1420, 1450, or S140 or equivalent
	11 term courses (incl senior req)	12 term courses (incl senior req)
Requirements	Third year of an East European or Eurasian language, or equivalent; students that place out of language courses may substitute with approved content courses	RUSS 1500 and 1510, or equivalent; students that place out of language courses may substitute with approved content courses
	2 courses in Russian, East European, or Eurasian history	2 courses in Russian, East European, or Eurasian history
	1 RSEE-area focused course in social sciences	1 RSEE-area focused course in social sciences
	1 course in RSEE literature or culture	1 course in RSEE literature or culture
	Electives in consultation with DUS	Electives in consultation with DUS
Senior Requirements	Senior Essay (RSEE 4900 or 4910; or by petition, a yearlong essay, in which case the second term counts as a 12th course)	Senior Essay (RSEE 4900 or 4910; or by petition, a yearlong essay, in which case the second term counts as a 13th course)
Substitutions	Advanced courses in other departments (HIST, GLBL, PLSC etc.) with DUS permission	Advanced courses in other departments (HIST, GLBL, PLSC etc.) with DUS permission Updated February 2025

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-K	ussian

Degree Offered

B.A. Russian

Prerequisites for entering the

major

RUSS 1400, 1420, 1450, S140, or placement exam

11 term courses (12 credits)

RUSS 1500, 1510, 1600, 1610 (or equivalent) Students that place out of language courses may substitute with approved content courses

Requirements

2 Russian lit in translation courses (one in 19th c. and one in 20th c.)

1 content course in which Russian is the language of instruction (RUSS 1700-1900)

1 course in Russian, Eastern European, or Eurasian history or social sciences

Electives, as needed to bring the overall total to 11 required courses

Senior Requirements

Senior Essay

(RUSS 4900 or 4910)*

* Double majors may write a yearlong joint essay in which case the second term counts as a 12th req course

Substitutions

Yale summer program in Russian culture (RUSS S241, S242, or S243) for certain advanced Russian courses

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Statistics and Data Science

Degrees Offered	B.A. Statistics and Data Science	B.S. Statistics and Data Science	
Prerequisites for entering the major	1 from MATH 1200, ENAS 1510, MATH 3020, or equivalent		
	11 term courses beyond prereqs, incl senior req	14 term courses beyond prereqs, incl senior req	
	1 course from Mathematical Foundations and Theory : MATH 2220 or 2250 or 2260		
	2 courses from <i>Core Probablity and Statistics</i> (For the B.S., one of these courses must be S&DS 2420)		
	2 courses from Computational Skills		
Requirements for each degree	2 courses from Methods of Data Science (For the B.S., one of these courses must be S&DS 3650)		
	3 electives chosen from any discipline area, with DUS approval		
		3 additional electives: 1 from Mathematical Foundations and Theory and 2 from any discipline except Data Science in Context and Methods in Application Areas, with DUS approval	
Senior Requirements	Senior Project (S&DS 4910 or 4920)		

Some substitutions permitted with DUS approval

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Substitutions

Sociology

Degrees Offered

B.A. Sociology

Prerequisite

Requirements for each degree

None

13 term courses
(including senior red

(including senior req)					
Standard Major	Economy & Society concentration	Health & Society concentration	Data & Society concentration	Inequality, Race, & Society concentration	Student-Designed concentration
At least 1, but no more than 2 intro SOCY courses	ECON 2121 or ECON 2125	SOCY 1600 or SOCY 1601	1 semester of independent study	SOCY 1700	1 intermed or adv seminar in sociology
SOCY 2001 and SOCY 2002	SOCY 2001 or SOCY 2002	SOCY 2001 or SOCY 2002	SOCY 2001 or SOCY 2002	SOCY 2001 or SOCY 2002	SOCY 2001 or SOCY 2002
SOCY 2100	SOCY 2100	SOCY 2100	SOCY 2100	SOCY 2100	SOCY 2100
1 course in social science methods	1 course in social science methods	1 course in social science methods	1 course in social science methods	1 course in social science methods	1 course in social science methods
	Up to 4 courses relevant to the concentration from other depts (with DUS approval)	Up to 5 courses relevant to the concentration from other depts (with DUS approval)	Up to 4 courses relevant to the concentration from other depts (with DUS approval)	Up to 2 courses relevant to the concentration from other depts (with DUS approval)	Up to 4 courses relevant to the concentration from other depts (with DUS approval)
	2 intermed or adv inequality or economic sociology courses	2 intermed or adv SOCY courses relevant to concentration	1 intro and 1 intermed or adv course in statistics	5 courses related to race or inequality, up to 2 from outside dept	
			2 addtl methods courses		

Senior Requirements Non-intensive
One-term Senior essay
SOCY 4100
and
1 addtl 3000-level SOCY sem

Intensive major Two-term senior essay SOCY 4200 and SOCY 4201

Spanish

Degrees Offered B.A. Spanish B.A. Spanish Intensive

Prerequisites
for entering the
major

1 course from SPAN 1400, 1450, 1500 or equivalent

10 credits

(including senior requirement)

12 credits (including senior requirement)

SPAN 2200

Requirements for each degree

2 courses numbered SPAN 2200-2999

3 courses numbered SPAN 3000 or higher

5 courses numbered SPAN 3000 or higher

3 electives numbered SPAN 2000 or higher or First-year seminar taught in Spanish

A maximum of one course taught in language other than Spanish may count toward major reqs, with DUS approval

Senior Requirements

SPAN 4900 Senior Essay

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Theater, Dance, and Performance Studies

Degree Offered

BA Theater, Dance, and Performance Studies

Prerequisites
for entering the
major

TDPS 1000 TDPS 1001

Requirements

10 term courses (incl 1 senior req course)

2 courses in each of four domains

Artistic Practice
Interarts
Histories
Performance Theory

1 elective

Senior Requirements Senior seminar with substantial final essay, production seminar, or senior independent study TDPS 4900, 4901, or 4902

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Women's, Gender, and Sexuality Studies

Degree Offered

BA Women's, Gender, and Sexuality Studies

Prerequisites for entering the major

None

Requirements

12 term courses (including senior requirements)

2 intermediate courses selected from:

WGSS 2205 WGSS 2206 WGSS 2207 WGSS 3340

for each degree

1 methodology course

7 electives in area of focus (at least one WGSS seminar numbered 3350 or above)

Senior Requirements

Two-term senior essay WGSS 4490

> and WGSS 4491

Single-term senior essay

in upper-level WGSS seminar,
with instructor, DUS
permission
and
1 additional WGSS elective

Updated April 2025