

HST U411	Environment in the Age of Discovery	4 SH	SOC U440	Sociology of Human Service Organizations	4 SH
HST U421	History through Film	4 SH	SOC U470	Social Conflict and Community Service	4 SH
HST U450	Engendering China	4 SH	SOC U485	Environment, Technology, and Society	4 SH
HST U990	Editing for Historical Publication	4 SH	SOC U525	American Demographics	4 SH
IAF U400	International Conflict and Negotiation	4 SH	SOC U528	Computers and Society	4 SH
INT U310	Water Resources Policy and Management	4 SH	THE U315	Theatre/Modernism	4 SH
INT U600	Contemporary Issues: Race, Science, and Technology	4 SH			
LIN U450	Syntax	4 SH			
LNS U436	Structure of Spanish	4 SH			
LNS U550	Masterpieces of Spanish Literature: Twelfth–Seventeenth Century	4 SH			
LNS U551	Masterpieces of Spanish Literature: Eighteenth–Twentieth Century	4 SH			
MUS U311	Historical Traditions 1: America	4 SH			
PHL U265	Latin American Religions	4 SH			
PHL U325	Ancient Philosophy	4 SH			
PHL U330	Modern Philosophy	4 SH			
PHL U340	Philosophy of Human Nature	4 SH			
PHL U390	Cults and Sects	4 SH			
PHL U435	Moral Philosophy	4 SH			
PHL U440	Aesthetics	4 SH			
PHL U445	Philosophy of Religion	4 SH			
PHL U460	Philosophy and Literature	4 SH			
PHL U465	Advanced Medical Ethics	4 SH			
PHL U500	Theory of Knowledge	4 SH			
PHL U505	Metaphysics	4 SH			
PHL U510	Philosophy of Science	4 SH			
PHL U515	Advanced Logic	4 SH			
PHL U520	Philosophy of Logic	4 SH			
PHL U525	Philosophy of Social Science	4 SH			
PHL U530	Philosophy of Psychology	4 SH			
PHL U535	Philosophy of Mind	4 SH			
PHL U540	Philosophy of Language	4 SH			
PHL U901	Topics in Philosophy Seminar	4 SH			
PHL U902	Great Philosophers Seminar	4 SH			
PHL U903	Seminar in Religion	4 SH			
PHL U904	Major Figures in Religious Studies	4 SH			
POL U307	Public Policy and Administration	4 SH			
POL U370	Religion and Politics	4 SH			
POL U390	Science, Technology, and Public Policy	4 SH			
POL U405	International Political Economy	4 SH			
POL U415	Ethnic Conflict in Comparative Politics	4 SH			
POL U425	U.S. Foreign Policy	4 SH			
POL U435	Politics in Western Europe	4 SH			
POL U445	Politics in Central and Eastern Europe	4 SH			
POL U465	Government and Politics in the Middle East	4 SH			
POL U470	Arab-Israeli Conflict	4 SH			
POL U480	Government and Politics in Japan	4 SH			
POL U487	Politics of Developing Nations	4 SH			
SOA U500	Latin American Society and Development	4 SH			
SOA U505	Native North Americans	4 SH			
SOA U510	Anthropology of Africa	4 SH			
SOC U402	Feminist Perspectives on Society	4 SH			
SOC U406	Class, Crime, and the Legal System	4 SH			

AFRICAN-AMERICAN STUDIES

www.afrostudies.neu.edu

KWAMINA PANFORD, PhD
Associate Professor and Chair

COLLEGE OF ARTS AND SCIENCES DISTINGUISHED PROFESSOR

Patrick Manning, PhD

PROFESSOR

Ronald W. Bailey, PhD

ASSOCIATE PROFESSORS

Leonard L. Brown, PhD

Robin M. Chandler, PhD

Jordan Gebre-Medhin, PhD

Robert L. Hall, PhD

William Lowe, MA

ASSISTANT PROFESSOR

Emmett G. Price III, PhD

VISITING ASSISTANT PROFESSOR

Robin Kilson, PhD

ASSOCIATED FACULTY

Oscar T. Brookins, PhD, *Economics*

Edward A. Bullins, MFA, *Center for the Arts*

Cassandra V. Jackson, PhD, *English*

Lester P. Lee Jr., MA, *Cooperative Education*

William F. S. Miles, PhD, *Political Science*

Peter C. Murrell, PhD, *Education*

The diverse experiences of black people—in the United States, Africa, the Caribbean, South America, and other parts of the world—are the focus of the field of African-American studies. The curriculum is interdisciplinary in approach and includes historical, social and behavioral, and cultural studies. International studies and contemporary public policy issues are also integral parts of the program. In class, in co-op, and in internships, students apply theoretical knowledge to real-world problems and concerns. Study-abroad programs exist in Ghana, Egypt, and South Africa. Negotiations are under way to establish additional study-abroad programs in Africa, the Caribbean, and Central and South America.

Students with training in African-American studies have the knowledge to meet the challenges posed by diverse racial, cultural, and ethnic groups in the United States and abroad. Many graduates attend professional schools or teach at the secondary or the college level. Others work in museums, libraries, or research centers; in business; or in public service, social service, or law-enforcement agencies. See pages 207–214 for course descriptions.

BA in African-American Studies

COLLEGE OF ARTS AND SCIENCES BA CORE REQUIREMENTS

See page 44 for requirement list.

AFRICAN-AMERICAN STUDIES MAJOR REQUIREMENTS

Introductory Courses

Complete the following three courses:

AFR U101	African-American Studies	4 SH
AFR U109	Foundations of Black Culture 1	4 SH
AFR U185	Gender in the African Diaspora	4 SH

Literature

Complete the following course:

AFR U663	Early African-American Literature	4 SH
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Research and Seminar

Complete the following two courses:

AFR U310	Applied Research in the African Diaspora	4 SH
AFR U700	Advanced Seminar	4 SH

Electives

Complete six African-American Studies courses at the intermediate and advanced level (AFR U300 or above).

EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

AFRICAN-AMERICAN STUDIES MAJOR CREDIT REQUIREMENT

Complete 48 semester hours for the major.

UPPER-DIVISION ELECTIVES

Complete three general electives at 300 level or above.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

128 total semester hours required

Transition students are required to complete 132 total semester hours

Minimum 2.000 GPA required

BS in African-American Studies

COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR SOCIAL SCIENCE MAJORS

See page 46 for requirement list.

AFRICAN-AMERICAN STUDIES MAJOR REQUIREMENTS

Introductory Courses

Complete the following three courses:

AFR U101	African-American Studies	4 SH
AFR U109	Foundations of Black Culture 1	4 SH
AFR U185	Gender in the African Diaspora	4 SH

Literature

Complete the following course:

AFR U663	Early African-American Literature	4 SH
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Research and Seminar

Complete the following two courses:

AFR U310	Applied Research in the African Diaspora	4 SH
AFR U700	Advanced Seminar	4 SH

Electives

Complete six African-American Studies courses at the intermediate and advanced level (AFR U300 to AFR U699).

EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

AFRICAN-AMERICAN STUDIES MAJOR CREDIT REQUIREMENT

Complete 48 semester hours for the major.

UPPER-DIVISION ELECTIVES

Complete three general electives at 300 level or above.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

128 total semester hours required

Transition students are required to complete 132 total semester hours

Minimum 2.000 GPA required

Minor in African-American Studies

REQUIRED COURSES

Complete the following four courses:

AFR U101	African-American Studies	4 SH
AFR U109	Foundations of Black Culture 1	4 SH
AFR U185	Gender in the African Diaspora	4 SH
AFR U310	Applied Research in the African Diaspora	4 SH
or AFR U700	Advanced Seminar	4 SH

ELECTIVE COURSE

Complete one additional course in consultation with your adviser.

GPA REQUIREMENT

2.000 GPA required in the minor

AMERICAN SIGN LANGUAGE–ENGLISH INTERPRETING

www.asl.neu.edu

DENNIS R. COKELY, PhD
Associate Professor and Director

LECTURERS

Luce Aubrey, MA
Alma L. Bournazian, MS
Cathy Cogen, MEd
James Lipsky, MA
George Phelgrim, MA

American Sign Language (ASL) is a language used by large numbers of people in the United States and Canada. By mastering ASL, students gain both access to the culture of Deaf America and insights into features of spoken language that are often taken for granted. Learning a modally different language gives students a new sense of the power of language and an appreciation of how it shapes their world. In this way, the mastery of ASL sharpens critical-thinking skills.

The program provides a firm foundation in language, linguistics, culture, and interpreting, plus a broad-based liberal arts education. American Sign Language courses are integral to degrees in human services with a specialization in Deaf studies and in linguistics with a focus on ASL.

Opportunities for ASL–English interpreters continue to increase, due to federal and state legislation. Graduates work as interpreters in such areas as higher education, advanced technology, and theatre.

The ASL Interpreter Education Project seeks to enhance the skills of interpreters currently working in the field and to increase the supply of competent interpreters in New England. See pages 222–224 for course descriptions.

BS in American Sign Language**COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR ARTS/HUMANITIES MAJORS**

See page 45 for requirement list.

AMERICAN SIGN LANGUAGE MAJOR REQUIREMENTS*American Sign Language*

Complete the following four courses:

ASL U101	Elementary ASL 1	4 SH
ASL U102	Elementary ASL 2	4 SH
ASL U301	Intermediate ASL 1	4 SH
ASL U302	Intermediate ASL 2	4 SH

Social and Cultural World

Complete the following two courses:

ASL U150	Deaf People in Society	4 SH
ASL U350	Deaf History and Culture	4 SH

Linguistics

Complete the following three courses:

ASL U460	ASL Linguistics	4 SH
ASL U560	ASL-English Contrastive Analysis	4 SH
LIN U150	Introduction to Language and Linguistics	4 SH

Interpreting

Complete the following five courses:

ASL U510	Interpreting Inquiry Texts	4 SH
ASL U515	Interpreting Narrative Texts	4 SH
ASL U550	The Interpreting Profession	2 SH
ASL U610	Interpreting Expository Texts	4 SH
ASL U615	Interpreting Persuasive Texts	4 SH

Interpreting Practicum

Complete the following practicum:

ASL U950	Interpreting Practicum	4 SH
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Ethics

Complete the following two courses:

ASL U650	Ethical Decision Making	4 SH
ASL U651	Ethical Fieldwork	2 SH

Research Capstone

Complete the following capstone:

ASL U960	Interpreting Research Practicum	4 SH
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EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

GPA REQUIREMENT

Minimum 2.750 GPA required in all ASL courses
Minimum 2.500 overall GPA required

AMERICAN SIGN LANGUAGE CREDIT REQUIREMENT

Complete 72 semester hours in the major.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

128 total semester hours required
Transition students are required to complete 132 total semester hours
Minimum 2.000 GPA required

ARCHITECTURE

www.architecture.neu.edu

GEORGE THRUSH, MARCH
Associate Professor and Chair

MATTHEWS DISTINGUISHED UNIVERSITY PROFESSOR

Mardges Bacon, PhD

PROFESSOR

Elizabeth C. Cromley, PhD

ASSOCIATE PROFESSORS

Darell W. Fields, PhD

Peter H. Wiederspahn, MArch

ASSISTANT PROFESSORS

Timothy Love, MArch

Mo Zell, MArch

Architecture is the context for civic life. In an age of increasingly rapid technological and social change, architects must find ways to forge connections between our past and our future. That involves critical thinking about many complex contemporary issues, such as the relationship of public and private life, the interaction between formal and political ideas in cities, and the role of technology in contemporary architecture and design. Because the process of designing buildings involves the synthesis of disparate elements, it can also translate into strategies for approaching a wide range of other problems not traditionally understood to be “architecture.” At Northeastern, we connect specific problem solving inherent to architectural understanding with the larger context of contemporary cities.

The curriculum teaches students to conceptualize, synthesize, and represent complex architectural and urban issues. The program focuses on core skills and critical thinking as preparation for both professional practice and advanced study. The curriculum in the design studio encompasses two major themes: first, the studio projects focus on the art of building, and second, the projects explore how buildings affect urban conditions. Buildings meet both our individual need for shelter and our shared need for cultural meaning. The art of building includes the study of building construction and technology, as well as the cultural messages created by the expression of material, structure, and form in architecture. The contemporary city is our laboratory. This urban focus requires that students integrate their own creative impulses with the future of the society of which they will be a part. By building on the practical and technical training afforded by co-op to develop core professional skills, the curriculum focuses on architecture’s fundamental aesthetic, technological, social, and political aspects.

With the effective synthesis of the art of building with urban issues, Northeastern’s program in architecture is becoming a leader in identifying opportunities for civic representation, urban development, and neighborhood design. Northeastern’s students are in demand in area offices because of their combination of professional competence and fluency in urban architectural issues. There are opportunities for interdisciplinary cooperation in urban-oriented research and creative work in areas such as GIS mapping, urban economics and development, new forms of spatial and visual communication, and public policy.

In addition, complete the arts and sciences core curriculum and the experiential education requirement (see page 32).

BS in Architecture**COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR ARTS/HUMANITIES MAJORS**

See page 45 for requirement list.

ARCHITECTURE MAJOR REQUIREMENTS*Breadth Courses***CALCULUS**

Complete the following course:

MTH U241 Calculus 1 for Science and Engineering 4 SH

PHYSICS

Complete the following course:

PHY U141 General Physics 4 SH

*Architecture Requirements***FOUNDATION SKILLS**

Complete the following four courses:

ARC U111 History of World Architecture 1 4 SH

ARC U112 History of World Architecture 2 4 SH

ARC U256 Manual Representation 4 SH

ARC U257 Digital Representation 4 SH

HISTORY/THEORY

Complete the following four courses:

ARC U325 Nineteenth-Century Architecture and Urbanism 4 SH

ARC U326 Twentieth-Century Architecture and Urbanism 4 SH

ARC U329 American Houses and Housing 4 SH

ARC U330 Third-Year Seminar 4 SH

TECHNOLOGY

Complete the following four courses:

ARC U356 Structures 1: Statics 4 SH

ARC U357 Structures 2: Tectonics 4 SH

ARC U555 Environmental Systems 4 SH

ARC U656 Integrated Building Systems 4 SH

STUDIO DESIGN

Complete the following five courses:

ARC U310 Studio 1: Site, Type, Composition 6 SH

ARC U311 Studio 2: Pattern and Urban Design 6 SH

ARC U410 Studio 3: Building Beyond the City 6 SH

ARC U510 Studio 4: Housing and Aggregation 6 SH

ARC U511 Studio 5: Tectonics 6 SH

EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

GPA REQUIREMENT

Minimum 2.500 GPA required

ARCHITECTURE MAJOR CREDIT REQUIREMENT

Complete 79 semester hours in the major.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION**UNIVERSITY-WIDE REQUIREMENTS**

128 total semester hours required

Transition students are required to complete 132 total semester hours

Minimum 2.000 GPA required

Minor in Architectural History**REQUIRED COURSES**

Complete the following four courses:

ARC U111	History of World Architecture 1	4 SH
ARC U112	History of World Architecture 2	4 SH
ARC U325	Nineteenth-Century Architecture and Urbanism	4 SH
ARC U326	Twentieth-Century Architecture and Urbanism	4 SH

GPA REQUIREMENT

2.000 GPA required in the minor

BEHAVIORAL NEUROSCIENCE

DENISE JACKSON, PhD

Associate Professor of Psychology and Acting Program Director

PROGRAM ADVISORY BOARD

Joseph L. Ayers, PhD, *Department of Biology*

Frederick C. Davis, PhD, *Department of Biology*

Michelle L. Israel, MS, *Associate Cooperative Education Coordinator*

Richard H. Melloni Jr., PhD, *Department of Psychology*

Franklin Naarendorp, PhD, *Department of Psychology*

Donald M. O'Malley, PhD, *Department of Biology*

James R. Stellar, PhD, *College of Arts and Sciences Dean's Office*

The behavioral neuroscience major is an interdepartmental program for undergraduates, with a program director and advisory board made up of the neuroscience faculty of the College of Arts and Sciences. The field of neuroscience focuses on brain mechanisms and how they give rise to behavioral functions in humans and animals. Behavioral neuroscience combines the disciplines of biology and psychology with a strong background in basic physical sciences and mathematics. The goal is to achieve an understanding of anatomy and physiology of nerve cells, neurochemical transmission, simple neural circuits, and fundamental biological processes such as inheritance and development, and then to see how these biological events give rise to normal and pathological behavior. The primary objective of the neuroscience major is to draw together

faculty and students who are interested in this interdisciplinary topic and to provide undergraduates with an education in the field. This major serves as ideal preparation for advancement to graduate programs in the field of neuroscience or to biology or psychology programs with an emphasis in neurobiology. This major also serves as preparation for admission to medical school, although there are additional science courses that should be taken as electives. The curriculum also prepares students to find employment in clinical settings or in allied fields such as the biotech industry.

For further information, contact Dr. Jackson, preferably at d.jackson@neu.edu. Phone messages may be left at 617.373.3860.

BS in Behavioral Neuroscience**COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR NATURAL SCIENCE MAJORS**

See page 46 for requirement list.

BEHAVIORAL NEUROSCIENCE MAJOR REQUIREMENTS**Foundation Courses****PSYCHOLOGY**

Complete the following course:

PSY U101 Foundations of Psychology 4 SH

MATHEMATICS

Complete the following two courses:

MTH U141 Calculus 1 4 SH

or MTH U151 Calculus and Differential Equations for Biology 1 4 SH

MTH U142 Calculus 2 4 SH

or MTH U152 Calculus and Differential Equations for Biology 2 4 SH

SCIENCE

Complete the following four courses with corresponding labs:

BIO U101 Principles of Biology 1 4 SH

with BIO U102 Lab for BIO U101 1 SH

BIO U301 Genetics and Molecular Biology 4 SH

with BIO U302 Lab for BIO U301 1 SH

CHM U211 General Chemistry 1 4 SH

with CHM U212 Recitation for CHM U211 0 SH

CHM U214 General Chemistry 2 4 SH

with CHM U215 Lab for CHM U214 1 SH

Level-Two Courses**PSYCHOLOGY**

Complete the following three courses:

PSY U320 Statistics in Psychological Research 4 SH

with PSY U321 Lab for PSY U320 1 SH

PSY U458 Psychobiology 4 SH

or BIO U405 Neurobiology 4 SH

PSY U510 Psychopharmacology 4 SH

SCIENCE

Complete the following three courses and corresponding labs:

BIO U319	Regulatory Cell Biology	4 SH
with BIO U320	Lab for BIO U319	1 SH
or BIO U551	Principles of Animal Physiology	4 SH
with BIO U552	Lab for BIO U551	1 SH
CHM U311	Organic Chemistry 1	4 SH
with CHM U312	Lab for CHM U311	1 SH
CHM U313	Organic Chemistry 2	4 SH
with CHM U314	Lab for CHM U313	1 SH

SEMINAR

Complete one seminar from the following list:

BIO G383	Topics in Biochemistry Cell and Molecular Biology	2 SH
BIO G384	Topics in Integrative Biology	2 SH
BIO U409	Current Topics in Biology	4 SH
PSY U654	Seminar in Behavioral Modification	4 SH
PSY U656	Seminar in Psychobiology	4 SH
PSY U658	Seminar in Psycholinguistics	4 SH
PSY U660	Seminar in Cognition	4 SH
PSY U666	Seminar in Clinical Psychology	4 SH
PSY U668	Seminar in Sensation and Perception	4 SH

LABORATORY COURSE

Complete one laboratory course from the following list:

BIO U579	Biochemistry Methods Laboratory	5 SH
BIO U924	Directed Study	4 SH
BIO U970	Junior/Senior Project 1	4 SH
BIO U971	Junior/Senior Project 2	4 SH
PSY U602	Experiments in Learning and Motivation	4 SH
PSY U604	Laboratory in Learning and Motivation	4 SH
PSY U606	Laboratory in Psychobiology	4 SH
PSY U608	Laboratory in Animal Behavior Research	4 SH
PSY U610	Laboratory in Psycholinguistics	4 SH
PSY U612	Laboratory in Cognition	4 SH
PSY U622	Laboratory in Sensation and Perception	4 SH
PSY U924	Directed Study	4 SH
PSY U970	Junior/Senior Project 1	4 SH
PSY U971	Junior/Senior Project 2	4 SH

Level-Three Courses

PSYCHOLOGY COURSES (AREA A)

Complete one course from the following list:

PSY U202	Biological Basis of Mental Illness	4 SH
PSY U358	Behavior Therapies	4 SH
PSY U400	Personality	4 SH
PSY U402	Social Psychology	4 SH
PSY U404	Developmental Psychology	4 SH
PSY U406	Abnormal Psychology	4 SH

PSYCHOLOGY ELECTIVES (AREA B)

Complete two courses from the following list:

PSY U450	Learning and Motivation	4 SH
PSY U452	Introduction to Sensation and Perception	4 SH
PSY U464	Psychology of Language	4 SH
PSY U466	Cognition	4 SH
PSY U512	Neuropsychology	4 SH
PSY U520	Language and the Brain	4 SH

BIOLOGY ELECTIVES (AREA C)

Complete two courses and corresponding labs from the following list:

BIO U311	Ecology	4 SH
with BIO U312	Lab for BIO U311	1 SH
BIO U315	Invertebrate Zoology	4 SH
with BIO U316	Lab for BIO U315	1 SH
BIO U317	Vertebrate Zoology	4 SH
with BIO U318	Lab for BIO U317	1 SH
BIO U319	Regulatory Cell Biology	4 SH
with BIO U320	Lab for BIO U319	1 SH
BIO U323	Biochemistry	4 SH
with BIO U324	Lab for BIO U323	1 SH
BIO U401	Comparative Vertebrate Anatomy	4 SH
with BIO U402	Lab for BIO U401	1 SH
BIO U403	Animal Behavior	4 SH
BIO U407	Molecular Cell Biology	4 SH
BIO U503	Marine Invertebrate Zoology	4 SH
with BIO U504	Lab for BIO U503	1 SH
BIO U545	Neuroethology	4 SH
with BIO U546	Lab for BIO U545	1 SH
BIO U547	Sociobiology	4 SH
BIO U553	Biology of Muscle: Molecules to Movements	4 SH
BIO U565	Mammalogy	4 SH
with BIO U566	Lab for BIO U565	1 SH
BIO U577	Developmental Biology	4 SH
with BIO U578	Lab for BIO U577	1 SH
BIO U581	Biological Imaging	4 SH
BIO U583	Immunology	4 SH
BIO U585	Evolution	4 SH
with BIO U586	Lab for BIO U585	1 SH
BIO U587	Comparative Neurobiology	4 SH

BEHAVIORAL NEUROSCIENCE EXPERIENTIAL EDUCATION, HONORS PROJECT, OR DIRECTED STUDY

Complete either the experiential education, honors project, or directed study option.

Experiential Education Option

Complete a practical and reflective experience.

PRACTICAL EXPERIENCE

Complete one research co-op, research internship, research-oriented directed study, or study abroad.

REFLECTIVE EXPERIENCE

Complete one of the following capstones, seminars, or directed studies:

BIO U701	Biology Capstone	4 SH
BIO U954	Experiential Education Directed Study	4 SH
PSY U650	Seminar in Clinical Case Study	4 SH
PSY U652	Seminar in Ethics in Psychology	4 SH
PSY U656	Seminar in Psychobiology	4 SH
PSY U934	Independent Study	4 SH
PSY U951	Experiential Education Directed Study	4 SH

Honors Project Option

Complete two semesters of a BIO or PSY honors project:

BIO U970	Junior/Senior Project 1	4 SH
with BIO U971	Junior/Senior Project 2	4 SH
or PSY U970	Junior/Senior Project 1	4 SH
with PSY U971	Junior/Senior Project 2	4 SH

Directed Study Option

Complete two semesters of directed study, which includes a final oral presentation or written report:

BIO U924	Directed Study	4 SH
PSY U924	Directed Study	4 SH

BEHAVIORAL NEUROSCIENCE MAJOR CREDIT REQUIREMENT

Complete 88 semester hours in the major.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

128 total semester hours required

Transition students are required to complete 132 total semester hours

Minimum 2.000 GPA required

BIOCHEMISTRY

www.biochemistry.neu.edu

Biochemistry includes nearly the entire spectrum of science—from physics and chemistry to biology and medicine. The biochemistry major, sponsored jointly by the departments of biology and chemistry, provides a strong foundation in mathematics and the physical sciences as well as thorough training in biochemistry, biology, and chemistry. In addition to formal classwork, opportunities are available for participation in faculty research programs on an individual basis or through the honors program. The large number of biotechnology companies and biomedical facilities in the Boston area provides a rich source of opportunities through Northeastern's program of cooperative education.

A Bachelor of Science degree in biochemistry allows students to enter the job market directly or go on to graduate, medical, veterinary, dental, law, or business school. Students may find positions in biotechnology companies, pharmaceutical companies, or government agencies, working in laboratory or clinical research, quality control, production, information systems, marketing, or technical sales. Students may also pursue graduate study in biochemistry, molecular biology, cell biology, biophysics, genetics, toxicology, biotechnology, clinical chemistry, animal science, nutrition, plant science, or other biomedical sciences.

Students who are interested in attending medical, dental, or veterinary school following graduation are urged to consult with the preprofessional advisory committee early in their careers at Northeastern.

To graduate with a major in biochemistry, a student must have a cumulative grade-point average (GPA) of 2.000 for all science and mathematics courses required for the major.

Students must maintain a minimal grade-point average of 2.000 to remain in this program. In addition, students must complete the arts and sciences core curriculum and experiential education requirement.

BS in Biochemistry**COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR NATURAL SCIENCE MAJORS**

See page 46 for requirement list.

BIOCHEMISTRY BREADTH COURSES**Mathematics Courses**

Complete the following two courses:

MTH U151	Calculus and Differential Equations for Biology 1	4 SH
MTH U152	Calculus and Differential Equations for Biology 2	4 SH

Physics Courses

Complete the following two courses and corresponding labs:

PHY U145	Physics for Life Sciences 1	4 SH
with PHY U146	Lab for PHY U145	1 SH
or PHY U151	Physics for Engineering 1	4 SH
with PHY U152	Lab for PHY U151	1 SH
or PHY U161	Physics 1	4 SH
with PHY U162	Lab for PHY U161	1 SH
PHY U147	Physics for Life Sciences 2	4 SH
with PHY U148	Lab for PHY U147	1 SH
or PHY U155	Physics for Engineering 2	4 SH
with PHY U156	Lab for PHY U155	1 SH
or PHY U165	Physics 2	4 SH
with PHY U166	Lab for PHY U165	1 SH

Computer Science Course

Complete one approved computer science course from the following list:

CET U201	Visual Basic Programming	4 SH
GE U111	Engineering Problem-Solving and Computation	4 SH

BIOCHEMISTRY MAJOR REQUIREMENTS**Principles of Biology**

Complete the following two courses and corresponding labs:

BIO U101	Principles of Biology 1	4 SH
with BIO U102	Lab for BIO U101	1 SH
or BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH
BIO U103	Principles of Biology 2	4 SH
with BIO U104	Lab for BIO U103	1 SH
or BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH

Molecular Biology

Complete the following two courses and corresponding lab:

BIO U301	Genetics and Molecular Biology	4 SH
with BIO U302	Lab for BIO U301	1 SH
BIO U407	Molecular Cell Biology	4 SH

Chemistry Courses

Complete the following six courses and corresponding labs:

CHM U211	General Chemistry 1	4 SH
with CHM U212	Lab for CHM U211	1 SH
CHM U214	General Chemistry 2	4 SH
with CHM U215	Lab for CHM U214	1 SH
CHM U311	Organic Chemistry 1	4 SH
with CHM U312	Lab for CHM U311	1 SH
CHM U313	Organic Chemistry 2	4 SH
with CHM U314	Lab for CHM U313	1 SH
CHM U321	Analytical Chemistry	4 SH
with CHM U322	Lab for CHM U321	1 SH
CHM U401	Physical Chemistry 1	4 SH
with CHM U402	Lab for CHM U401	1 SH

Biochemistry Courses

Complete the following course and corresponding lab:

BIO U323	Biochemistry	4 SH
with BIO U324	Lab for BIO U323	1 SH

Capstone

Complete one of the following courses:

BIO U701	Biology Capstone	4 SH
CHM U770	Chemistry Capstone	4 SH

Biology and Chemistry Advanced Electives

Complete four advanced courses from biology and chemistry with a minimum of one from each department. In addition, at least one approved lab course must be taken, requiring a total of 17 semester hours:

BIOLOGY

BIO U311 to BIO U699

CHEMISTRY

CHM U310 to CHM U699

LABS

BIO U579	Biochemistry Methods Laboratory	5 SH
CHM U332	Lab for CHM U331	1 SH
with CHM U331	Bioanalytical Chemistry	4 SH
CHM U522	Instrumental Methods of Analysis Lab	4 SH
with CHM U521	Instrumental Methods of Analysis	1 SH
CHM U532	Chemical Synthesis Characterization Lab	4 SH
with CHM U531	Chemical Synthesis Characterization	1 SH

EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

BIOCHEMISTRY MAJOR CREDIT AND GPA REQUIREMENTS

Complete 96 semester hours in the major with a cumulative GPA of 2.000.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

136 total semester hours required

Minimum 2.000 GPA required

BIOLOGY

www.biology.neu.edu

SUSAN POWERS-LEE, PhD

Professor and Chair

MATTHEWS DISTINGUISHED UNIVERSITY PROFESSORS

Phyllis R. Strauss, PhD

Carol M. Warner, PhD

PROFESSORS

Ahmed T. Abdelal, PhD

Frederick C. Davis, PhD

H. William Detrich, PhD

Edward L. Jarroll, PhD

Gwilym S. Jones, PhD

Kim Lewis, PhD

James M. Manning, PhD

Richard L. Marsh, PhD

Charles A. M. Meszoely, PhD

COLLEGE OF ARTS AND SCIENCES**DISTINGUISHED ASSOCIATE PROFESSOR**

Wendy A. Smith, PhD

ASSOCIATE PROFESSORS

Joseph L. Ayers, PhD

Kostia Bergman, PhD

Donald P. Cheney, PhD

Charles H. Ellis Jr., PhD

Donald M. O'Malley, PhD

Jacqueline M. Piret, PhD

Daniel C. Scheirer, PhD

ASSISTANT PROFESSORS

Slava S. Epstein, PhD

Valentin A. Ilyin, PhD

Rebeca B. Rosengaus, PhD

Geoffrey C. Trussell, PhD

By majoring in biology, students develop a basic understanding of the organization and the processes of life, from molecules and cells through organs and organ systems to populations, species, ecosystems, and evolution. The major offers the mathematical, chemical, and physical background necessary for understanding biology and the practical scientific skills associated with each of these areas. It allows students to begin to specialize in a subdiscipline of biology such as animal physiology, cell biology, ecology, marine biology, microbiology, molecular biology, plant biology, zoology, and so forth. Numerous opportunities for relevant positions are available through Northeastern's program of cooperative education. A marine biology concentration, designed to provide biology majors with a strong foundation in marine biology and related disciplines, is now offered through the Northeastern University Marine Science Center in Nahant.

The undergraduate biology major prepares students for careers in the life sciences, including medical, dental, and other health-related fields. Students may find employment in federal, state, industrial, hospital, or university laboratories or in industries involved in the manufacture and distribution of pharmaceuticals, biological products, food, or scientific equipment. Biologists also work in fisheries, forestry services, county and state agencies, museums, aquariums, research vessels, and marine stations. Graduate study culminating in a master's or doctoral degree can lead to careers in upper-level teaching or research in any of the life sciences.

Premedical, pre dental, and other preprofessional students are urged to consult with the preprofessional advisory committee early in their careers at Northeastern.

To graduate with a major in biology, a student must have a cumulative GPA of 2.000 for all science and mathematics courses required for the major.

BS in Biology

COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR NATURAL SCIENCE MAJORS

See page 46 for requirement list.

BREADTH COURSES FOR BIOLOGY

Mathematics

Complete the following two courses:

MTH U151	Calculus and Differential Equations for Biology 1	4 SH
MTH U152	Calculus and Differential Equations for Biology 2	4 SH

Chemistry

Complete the following four courses and corresponding labs:

CHM U211	General Chemistry 1	4 SH
with CHM U212	Lab for CHM U211	1 SH
CHM U214	General Chemistry 2	4 SH
with CHM U215	Lab for CHM U214	1 SH

CHM U311	Organic Chemistry 1	4 SH
with CHM U312	Lab for CHM U311	1 SH
CHM U313	Organic Chemistry 2	4 SH
with CHM U314	Lab for CHM U313	1 SH

Physics

Complete two courses from the following list and corresponding labs (PHY U145 and PHY U147 are recommended):

PHY U145	Physics for Life Sciences 1	4 SH
with PHY U146	Lab for PHY U145	1 SH
or PHY U151	Physics for Engineering 1	4 SH
with PHY U152	Lab for PHY U151	1 SH
or PHY U161	Physics 1	4 SH
with PHY U162	Lab for PHY U161	1 SH
PHY U147	Physics for Life Sciences 2	4 SH
with PHY U148	Lab for PHY U147	1 SH
or PHY U155	Physics for Engineering 2	4 SH
with PHY U156	Lab for PHY U155	1 SH
or PHY U165	Physics 2	4 SH
with PHY U166	Lab for PHY U165	1 SH

Intermediate or Advanced Science

Complete one intermediate or advanced science course from the following list:

BIO U311 to BIO U699		
CHM U321	Analytical Chemistry	4 SH
with CHM U322	Lab for CHM U321	1 SH
CHM U331 to CHM U699		
GEO U300 to GEO U699		
MTH U280 to MTH U699		
PHY U303 to PHY U699		
PSY U202	Biological Basis of Mental Illness	4 SH
PSY U458	Psychobiology	4 SH
PSY U510	Psychopharmacology	4 SH

BIOLOGY MAJOR REQUIREMENTS

Required Biology

Complete the following three courses and corresponding labs:

BIO U101	Principles of Biology 1	4 SH
with BIO U102	Lab for BIO U101	1 SH
or BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH
BIO U103	Principles of Biology 2	4 SH
with BIO U104	Lab for BIO U103	1 SH
or BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH
BIO U301	Genetics and Molecular Biology	4 SH
with BIO U302	Lab for BIO U301	1 SH

Experiential Education Introduction

Complete the following course:

BIO U106	Introduction to Experiential Education	1 SH
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BIOLOGY MAJOR ELECTIVES**Cellular and Molecular Biology**

Complete one course and corresponding lab from the following list:

BIO U319	Regulatory Cell Biology	4 SH
with BIO U320	Lab for BIO U319	1 SH
BIO U321	Microbiology	4 SH
with BIO U322	Lab for BIO U321	1 SH
BIO U323	Biochemistry	4 SH
with BIO U324	Lab for BIO U323	1 SH

Organismal and Population Biology

Complete one course and corresponding lab from the following list:

BIO U311	Ecology	4 SH
with BIO U312	Lab for BIO U311	1 SH
BIO U313	Plant Biology	4 SH
with BIO U314	Lab for BIO U313	1 SH
BIO U315	Invertebrate Zoology	4 SH
with BIO U316	Lab for BIO U315	1 SH
BIO U317	Vertebrate Zoology	4 SH
with BIO U318	Lab for BIO U317	1 SH

Intermediate and Advanced Biology

Complete three biology courses (at least 13 semester hours) at the BIO U311 level or above.

Biology Capstone

Complete the following course:

BIO U701	Biology Capstone	4 SH
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EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

BIOLOGY MAJOR CREDIT REQUIREMENT

Complete 83 semester hours in the major with a cumulative GPA of 2.000.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

136 total semester hours required

Minimum 2.000 GPA required

Minor in Biology

This minor is not available for students who major in Biochemistry, Behavioral Neuroscience, or any dual major that involves biology.

REQUIRED COURSES

Complete five biology courses. Three of the courses must be intermediate to advanced (in the BIO U300 to BIO U699 range).

REQUIRED LABS

Three of the five courses must contain a lab co-requisite.

BREADTH COURSE

Complete one CHM, GEO, or PHY course that serves as a prerequisite.

GPA REQUIREMENT

2.000 GPA required in the minor

Minor in Marine Biology**REQUIRED COURSES**

Complete the following two courses:

BIO U101	Principles of Biology 1	4 SH
BIO U103	Principles of Biology 2	4 SH

ELECTIVE COURSES

Complete three courses from the following list:

BIO U151	Introduction to Marine Biology	4 SH
BIO U315	Invertebrate Zoology	4 SH
BIO U501	Marine Botany	4 SH
with BIO U502	Lab for BIO U501	1 SH
BIO U503	Marine Invertebrate Zoology	4 SH
with BIO U504	Lab for BIO U503	1 SH
BIO U505	Biology of Corals and Coral Reefs	3 SH
BIO U507	Biology and Ecology of Fishes	3 SH
BIO U509	Marine Birds and Mammals	2 SH
with BIO U510	Lab for BIO U509	1 SH
BIO U511	Adaptations of Aquatic Organisms	3 SH
BIO U513	Tropical Terrestrial Ecology	1 SH
BIO U515	Benthic Marine Ecology	3 SH
BIO U517	Oceanography	2 SH
with BIO U518	Lab for BIO U517	1 SH
BIO U519	Ocean and Coastal Processes	3 SH
BIO U521	Experimental Design Marine Ecology	4 SH
with BIO U522	Lab for BIO U521	1 SH
BIO U523	Molecular Marine Biology	3 SH
BIO U525	Marine Microbial Ecology	2 SH
with BIO U526	Lab for BIO U525	1 SH

GPA REQUIREMENT

2.000 GPA required in the minor