African-American Studies

www.afrostudies.neu.edu

KWAMINA PANFORD, PHD
Associate Professor and Chair

Patrick Manning, PhD
PROFESSOR

Ronald W. Bailey, PhD
ASSOCIATE PROFESSORS

Leonard L. Brown, PhD
Robin M. Chandler, PhD
Jordan Gehre-Medlin, PhD
Robert L. Hall, PhD
William Lowe, MA

ASSISTANT PROFESSOR

Emmett G. Price III, PhD

VISITING ASSISTANT PROFESSOR

Robin Kilien, PhD

ASSOCIATED FACULTY

Oscar T. Brooks, 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.

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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

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

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

[Web link: www.asl.neu.edu]
DENNIS R. COKELY, PhD
Associate Professor and Director

LECTURERS
Luce Aubrey, MA
Alma L. Bournazian, MS
Cathy Cogris, MEd
James Lipsky, MA
George Pheglirgin, 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 U990 Interpreting Practicum 4 SH

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

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

[Web link: www.architecture.neu.edu]
GEORGE THRUSH, MARCH
Associate Professor and Chair

MATTHEWS DISTINGUISHED UNIVERSITY PROFESSOR
Mardges Bacon, PhD
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 12).

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.
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 4 SH for Biology 1
MTH U142 Calculus 2 4 SH
or MTH U152 Calculus and Differential Equations 4 SH for Biology 2

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
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 Psychology 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 U606** Laboratory in Learning and Motivation 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 A)**

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 U666** Seminar in Psychology 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 2.00 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 mathe-
ematics 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 fac-
culty 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 2.00 for all
science and mathematics courses required for the major.

Students must maintain a minimal grade-point average
of 2.00 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 4 SH
for Biology 1
MTH U152 Calculus and Differential Equations 4 SH
for Biology 2

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
or 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

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

Biological 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
  - 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
Kostya Bergman, PhD
Donald P. Cheney, PhD
Charles H. Ellis Jr., PhD
Donald M. O’Malley, PhD
Jacqueline M. Pietr, PhD
Daniel C. Scheier, PhD

Assistant Professors
Slava S. Epstein, PhD
Valentin A. Ilyin, PhD
Rebecca 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.

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

**BS in Biology Requirements**

- **CHM U311** Organic Chemistry 1 4 SH
- **CHM U312** Lab for CHM U311 1 SH
- **CHM U313** Organic Chemistry 2 4 SH
- **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
- **PHY U146** Lab for PHY U145 1 SH
- **PHY U151** Physics for Engineering 1 4 SH
- **PHY U152** Lab for PHY U151 1 SH
- **PHY U161** Physics 1 4 SH
- **PHY U162** Lab for PHY U161 1 SH
- **PHY U147** Physics for Life Sciences 2 4 SH
- **PHY U148** Lab for PHY U147 1 SH
- **PHY U155** Physics for Engineering 2 4 SH
- **PHY U156** Lab for PHY U155 1 SH
- **PHY U165** Physics 2 4 SH
- **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
- **CHM U322** Lab for CHM U321 1 SH
- **CHM U311** to **CHM U699**
- **GEO U300** to **GEO U699**
- **MTH U280** to **MTH U699**
- **PHY U303** to **PHY U699**

**BIOLOGY MAJOR REQUIREMENTS**

**Required Biology**
Complete the following three courses and corresponding labs:
- **BIO U101** Principles of Biology 1 4 SH
- **BIO U102** Lab for BIO U101 1 SH
- **BIO U111** General Biology 1 4 SH
- **BIO U112** Lab for BIO U111 1 SH
- **BIO U103** Principles of Biology 2 4 SH
- **BIO U104** Lab for BIO U103 1 SH
- **BIO U113** General Biology 2 4 SH
- **BIO U114** Lab for BIO U113 1 SH
- **BIO U301** Genetics and Molecular Biology 4 SH
- **BIO U302** Lab for BIO U301 1 SH

**Experiential Education Introduction**
Complete the following course:
- **BIO U106** Introduction to Experiential Education 1 SH
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

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.