

PHYSICAL THERAPY MAJOR GRADE REQUIREMENT

A grade of C or higher is required in all PTH courses.

GENERAL ELECTIVES

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

COOPERATIVE EDUCATION**UNIVERSITY-WIDE REQUIREMENTS**

192 total semester hours required

Minimum 2.000 GPA required

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY

www.bouve.neu.edu/Health/sipa.html

LINDA J. FERRIER, PhD

Associate Professor and Chair

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Speech-language pathologists and audiologists are involved with the evaluation and treatment of, and counseling and research in, human communication and its disorders. The Speech-Language Pathology and Audiology program is designed to help students develop entry-level competencies that will enable them to function in a preprofessional capacity in educational settings, medical and rehabilitation centers, and private practice clinics. Students will be exposed to a wide variety of communication disorders through observation and participation in activities at the Northeastern University Speech-Language and Hearing Center. This is a state-of-the-art facility in the new Behrakis building. Alongside their graduate student mentors, students learn the basics of clinical practice and research. Externships in schools, hospitals, or other relevant settings will also broaden students' exposure and prepare them for graduate study or employment. Students may also broaden their knowledge of health-care practice by taking interdisciplinary courses with their colleagues in disciplines such as physical therapy, nursing, and pharmacy.

Speech-language pathologists and audiologists provide clinical services to a full range of communicatively impaired individuals, from infants through geriatrics. Speech-language pathologists treat disorders such as developmental language and articulation disorders, voice and resonance problems, stuttering, and language and cognitive impairments due to stroke, head injury, and progressive neurological diseases. Audiologists specialize in the prevention, identification, assessment, and rehabilitation of hearing disorders. Individuals with congenital and acquired hearing impairments are seen for services by audiologists. They prescribe and dispense hearing aids and instruct individuals in the use of amplification. Undergraduate students take courses in both speech-language pathology and audiology in preparation for advanced training and specialization at the graduate level.

The Bachelor of Science degree program in speech-language pathology and audiology includes an experiential learning component, a broad-based academic core, and the scientific and clinical course work necessary for understanding normal and disordered communication. The degree offers preprofessional training for individuals who want to pursue graduate education in speech-language pathology and audiology. Alternately, graduates may be hired as speech and hearing assistants in a variety of clinical settings, or they may pursue other career paths in health care and education.

The speech-language pathology and audiology curriculum is designed to facilitate critical thinking, information literacy, and oral and written communication skills. In addition to course work in the basic communication sciences, course work is required in education, allied health, computer literacy, ethics, multicultural/diversity issues, and psychology. The curriculum provides a solid foundation in speech-language pathology and audiology and basic sciences, and it is sufficiently flexible to provide students with the opportunity to minor in an area of related interest. By taking five courses in the standard curriculum, students may earn a minor in psychology.

A unique aspect of the speech-language pathology and audiology program is a five-year accelerated program. Students who have maintained a GPA of 3.250 or better, who have a departmental endorsement, and who have satisfied all graduate program admissions requirements may seek admission to this program in their third year. Students will, if successful, earn both a BS in speech-language pathology and audiology and an MS in speech-language pathology at the end of the program and meet national certification requirements. The accelerated program is selective and a restricted number of students are admitted each year. The graduate programs in speech-language pathology and audiology and the University's Speech-Language and Hearing Center are fully accredited by the American Speech-Language-Hearing Association. See pages 451–453 for course descriptions.

Academic Progression Standards

In order to progress from the freshman to sophomore year, the student must have a GPA of at least 1.800 and have completed 27 semester hours. In order to progress into the subsequent

year of professional courses, the student must have a grade of C or better in all professional courses.

BS in Speech-Language Pathology and Audiology

SEMESTER 1

Freshman Seminar

BHS U100 College: An Introduction 1 SH

Anatomy and Physiology 1

Complete the following course with corresponding lab:
 BIO U117 Integrated Anatomy and Physiology 1 4 SH
 with BIO U118 Lab for BIO U117 1 SH

Introductory English

Complete the following course with a grade of C or higher:
 ENG U111 College Writing 4 SH

Precalculus

Complete the following course:
 MTH U121 Precalculus 4 SH

Introduction to Speech and Hearing

Complete the following course:
 SLA U101 Introduction to Speech and Hearing 4 SH

SEMESTER 2

Anatomy and Physiology 2

Complete the following course with corresponding lab:
 BIO U119 Integrated Anatomy and Physiology 2 4 SH
 with BIO U120 Lab for BIO U119 1 SH

Psychology

Complete the following course:
 PSY U101 Foundations of Psychology 4 SH

Language Development

Complete the following course:
 SLA U102 Language Development 4 SH

General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 3

Phonetics

Complete the following course:
 SLA U200 Phonetics 4 SH

Introduction to Co-op

Complete the following course:
 SLA U201 Introduction to Co-op 1 SH

Developmental Psychology

Complete the following course:
 PSY U404 Developmental Psychology 4 SH

Physics 1

Complete the following course with corresponding lab:
 PHY U145 Physics for Life Sciences 1 4 SH
 with PHY U146 Lab for PHY U145 1 SH

General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 4

Advanced Writing in the Disciplines

Complete the following course with a grade of C or higher:
 ENG U306 Advanced Writing in the Health Professions 4 SH

Statistics and Software

Complete the following course:
 MTH U280 Statistics and Software 4 SH

Cognition

Complete the following course:
 PSY U466 Cognition 4 SH

Clinical Research Directed Study

Complete the following course:
 SLA U701 Clinical Research Directed Study 1 SH

Education Elective

Complete one course from the following list:
 ED U561 Curriculum for the Pre-K Years 4 SH
 ED U567 Literacy Development and Instruction 4 SH
 ED U570 Inclusion, Equity, and Diversity 4 SH
 or any other course from the ED department.

SEMESTER 5 (SUMMER)

Diversity

Complete the following course:
 SOA U101 Peoples and Cultures 4 SH
 or complete a course from the list "Approved Courses: Diversity" on page 51.

General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 6

Health-Care Research

Complete the following course:
 BHS U450 Health-Care Research 4 SH

Speech and Hearing Science

Complete the following course:
 SLA U205 Speech and Hearing Science 4 SH

Introduction to Audiology

Complete the following course:
 SLA U203 Introduction to Audiology 4 SH

Anatomy and Physiology of Vocal Mechanism

Complete the following course:
 SLA U103 Anatomy and Physiology of the Vocal Mechanism 4 SH

SEMESTER 7 (SUMMER)

Free Electives

Complete two courses outside speech-language pathology and audiology. Courses toward an approved minor may be selected to satisfy this requirement.

SEMESTER 8**Language Disorders**

Complete the following course:

SLA U500 Language Disorders in Adults 4 SH

Aural Rehabilitation

Complete the following course:

SLA U503 Aural Rehabilitation 4 SH

Clinical Procedures

Complete the following course:

SLA U600 Clinical Procedures 4 SH

Psychology Elective

Complete one course from the PSY department.

SEMESTER 9**Communication Skills for the Health Profession**

Complete the following course:

BHS U300 Communication Skills for the Health Professions 4 SH

Early Intervention

Complete the following course:

BHS U505 Early Intervention 4 SH

Health-Care Ethics

Complete the following course:

BHS U510 Health-Care Ethics 4 SH

Seminar in Speech-Language Pathology and Audiology

Complete the following course:

SLA U650 Seminar in SLP and Audiology 4 SH

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY GRADE REQUIREMENT

A grade of C or higher is required in all SLA courses.

GENERAL ELECTIVES

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

COOPERATIVE EDUCATION**UNIVERSITY-WIDE REQUIREMENTS**

132 total semester hours required

Minimum 2.000 GPA required

BS/MS in Speech-Language Pathology and Audiology**SEMESTER 1****Freshman Seminar**

BHS U100 College: An Introduction 1 SH

Anatomy and Physiology 1

Complete the following course with corresponding lab:

BIO U117 Integrated Anatomy and Physiology 1 4 SH
with BIO U118 Lab for BIO U117 1 SH

Introductory English

Complete the following course with a grade of C or higher:

ENG U111 College Writing 4 SH

Precalculus

Complete the following course:

MTH U121 Precalculus 4 SH

Introduction to Speech and Hearing

Complete the following course:

SLA U101 Introduction to Speech and Hearing 4 SH

SEMESTER 2**Anatomy and Physiology 2**

Complete the following course with corresponding lab:

BIO U119 Integrated Anatomy and Physiology 2 4 SH
with BIO U120 Lab for BIO U119 1 SH

Psychology

Complete the following course:

PSY U101 Foundations of Psychology 4 SH

Language Development

Complete the following course:

SLA U102 Language Development 4 SH

General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 3**Phonetics**

Complete the following course:

SLA U200 Phonetics 4 SH

Introduction to Co-op

Complete the following course:

SLA U201 Introduction to Co-op 1 SH

Developmental Psychology

Complete the following course:

PSY U404 Developmental Psychology 4 SH

Physics 1

Complete the following course with corresponding lab:

PHY U145 Physics for Life Sciences 1 4 SH
with PHY U146 Lab for PHY U145 1 SH

General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 4**Advanced Writing in the Disciplines**

Complete the following course with a grade of C or higher:

ENG U306 Advanced Writing in the Health Professions 4 SH

Statistics and Software

Complete the following course:

MTH U280 Statistics and Software 4 SH

Cognition

Complete the following course:

PSY U466 Cognition 4 SH

Clinical Research Directed Study

Complete the following course:

SLA U701 Clinical Research Directed Study 1 SH

Education Elective

Complete one course from the following list:

ED U561	Curriculum for the Pre-K Years	4 SH
ED U567	Literacy Development and Instruction	4 SH
ED U570	Inclusion, Equity, and Diversity	4 SH

or any other course from the ED department.

SEMESTER 5 (SUMMER)**Diversity**

Complete the following course:

SOA U101	Peoples and Cultures	4 SH
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or complete a course from the list "Approved Courses: Diversity" on page 51.

General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 6**Health-Care Research**

Complete the following course:

BHS U450	Health-Care Research	4 SH
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Speech and Hearing Science

Complete the following course:

SLA U205	Speech and Hearing Science	4 SH
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Introduction to Audiology

Complete the following course:

SLA U203	Introduction to Audiology	4 SH
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Anatomy and Physiology of Vocal Mechanism

Complete the following course:

SLA U103	Anatomy and Physiology of the Vocal Mechanism	4 SH
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SEMESTER 7 (SUMMER)**Free Electives**

Complete two courses outside speech-language pathology and audiology. Courses toward an approved minor may be selected to satisfy this requirement.

SEMESTER 8**Articulation and Phonology**

Complete the following course:

SLA G305	Articulation and Phonology	3 SH
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Neurology of Communication

Complete the following course:

SLA G109	Neurology of Communication	3 SH
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Speech-Language Disorders in Children

Complete the following course:

SLA G306	Speech-Language Disorders in Children	3 SH
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Clinical Procedures

Complete the following course:

SLA U600	Clinical Procedures	4 SH
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SEMESTER 9**Speech-Language Disorders in Adults**

Complete the following course:

SLA G309	Speech-Language Disorders in Adults	3 SH
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Research and Evidence

Complete the following course:

SLA G211	Research and Evidence-Based Practice	3 SH
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Speech Science

Complete the following course:

SLA G301	Speech Science	3 SH
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SLP Seminar

Complete the following course:

SLA G414	SLP Clinic Seminar	1 SH
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SLP Clinic 1

Complete the following course:

SLA G415	SLP Advanced Clinical Practicum 1	3 SH
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SEMESTER 10 (SUMMER)**SLP Clinic 2**

Complete the following course:

SLA G416	SLP Advanced Clinical Practicum 2	3 SH
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General Elective

Complete one course outside speech-language pathology and audiology. A course toward an approved minor may be selected to satisfy this requirement.

SEMESTER 11**Dysphagia**

Complete the following course:

SLA G308	Dysphagia	3 SH
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Voice Disorders

Complete the following course:

SLA G307	Voice Disorders	3 SH
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SLP Clinic 3

Complete the following course:

SLA G417	SLP Advanced Clinical Practicum 3	3 SH
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Aural Rehabilitation

Complete the following course:

SLA U503	Aural Rehabilitation	4 SH
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SEMESTER 12**Stuttering**

Complete the following course:

SLA G303	Stuttering	3 SH
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Augmentative and Alternative Communication

Complete the following course:

SLA G304	Augmentative and Alternative Communication	3 SH
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SLP Clinic 4

Complete the following course:

SLA G418	SLP Advanced Clinical Practicum 4	3 SH
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Motor Speech Disorders

Complete the following course:

SLA G321	Motor Speech Disorders	3 SH
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SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY GRADE REQUIREMENT

A grade of C or higher is required in all SLA courses.

GENERAL ELECTIVES

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

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS

165 total semester hours required

Minimum 2.000 GPA required

SCHOOL OF NURSING

www.bouve.neu.edu/Nursing

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Susan Natale, MS, RN

Catherine A. O'Connor, MS

The School of Nursing offers a Bachelor of Science in nursing program designed to prepare students to become professional nurses for practice in a variety of health-care settings such as hospitals, community health centers, schools, and homes. The school aims to provide all students—including those with diverse backgrounds and changing career goals—with a broad-based education that will foster ongoing personal and professional growth.

Successful completion of the baccalaureate program allows graduates to take the National Council Licensing Examination (NCLEX-RN) to become registered nurses (see also “Special Requirements,” below) and also provides the educational background needed for graduate study in nursing specialties.

Nursing is both a science-based process and a caring art. The curriculum offers instruction in the sciences with opportunities in the humanities. Since nursing practice focuses on promoting, preserving, and restoring the health and well-being of individuals, families, groups, and communities across the life span, the curriculum emphasizes a community-based primary-care approach, which starts in the freshman year and builds throughout the program. This approach requires knowledge, skills, and attitudes related to health care that are comprehensive, culturally sensitive, continuous, effective, compassionate, and collaborative. Because the vast majority of people’s lives are spent in the community, a significant part of the clinical program takes place in the community where people live, work, rest, play, vote, and pray. Recognizing the equally important need to prepare nurses to care for ill patients in institutions, the program provides ample opportunities for nursing practice in hospitals, rehabilitation centers, and long-term care facilities. The curriculum is capped by courses that enable students to put leadership and management skills into action and to synthesize the complete role of the professional nurse in a clinical practicum.

In addition to completing academic course work, students must meet the cooperative education requirement, which gives them the opportunity to integrate the theory and practice of nursing in selected settings. Through more than seventy community and institutional health-care agencies in Greater Boston and across the country, students gain experience in providing nursing care to a variety of patients and families. Students learn that nurses have major roles in wellness and health promotion, acute care, and long-term care.

The program is accredited by the Commission on Collegiate Nursing Education and is approved by the Board

of Registration in Nursing of the Commonwealth of Massachusetts (BORN). Accreditation and approval indicate that the program meets educational standards for faculty, curriculum design, student quality, and overall University support. The school subscribes to the standards established by the American Association of Colleges of Nursing, of which it is a member. See pages 415–417 for course descriptions.

Special Requirements

All students must receive a health clearance from University Health and Counseling Services (UHCS). This is based on documentation of evidence of immunity from infectious disease and a physical examination (this may be done by the student's own health-care provider). In addition, nursing students need a clinical clearance in order to participate in clinical courses. Clinical clearance includes verification of UHCS health clearance and also documentation of current certification in cardiopulmonary resuscitation (CPR), recent tuberculosis screening (PPD), and additional health screenings as may be required by the program. It is the responsibility of the student to stay current and to provide documentation required for clinical clearance throughout the entire nursing program.

Many clinical settings also require additional information from the student, such as a Criminal Offender Record Information (CORI) release; the school will inform the student in those instances.

Students enrolled in the clinical courses may need access to a car to travel to assigned agencies. Students are responsible for their own transportation costs.

During academic semesters, students in the School of Nursing are required to wear the approved school uniform in some clinical laboratory areas.

In Massachusetts and several other states, the registering board requires that graduates sitting for the NCLEX-RN licensure examination meet standards of "good moral character." Students may review Licensure Policy No. 99-03 under "Rules & Regulations" on the Massachusetts BORN Web site at www.mass.gov/dpl/boards/rn/index.htm or investigate the requirements in the state where they expect to practice.

Transfer Student Track

The School of Nursing welcomes transfer students and students planning a career change who have a degree in another field. Recommended entering requirements include two semesters of anatomy and physiology (with lab), one chemistry course (with lab), and college algebra. Overall GPA should be a minimum of 3.000 for consideration into the program. A microbiology course (with lab) is strongly recommended. Students are accepted into this track for the fall semester only. Once accepted, the transfer student follows a fixed curriculum plan that includes cooperative education experiences. Students may complete their baccalaureate program requirements in approximately six semesters.

RN to BSN Option

The school accepts registered nurses who wish to complete requirements for a Bachelor of Science in nursing degree into the University's School of Professional and Continuing Studies. The part-time curriculum program varies, depending on the individual's previous educational experience and ability to achieve advancement through the development of a portfolio to validate prior learning.

BSN—Bachelor of Science in Nursing

SEMESTER 1

Nutrition

Complete the following course:

BHS U105 Nutrition 4 SH

Anatomy and Physiology 1

Complete the following course with corresponding lab:

BIO U117 Integrated Anatomy and Physiology 1 4 SH
with BIO U118 Lab for BIO U117 1 SH

Introductory English

Complete the following course with a grade of C or higher:

ENG U111 College Writing 4 SH

Diversity

Complete the following course:

NUR U210 Influences on Health and Illness 3 SH

SEMESTER 2

Anatomy and Physiology 2

Complete the following course with corresponding lab:

BIO U119 Integrated Anatomy and Physiology 2 4 SH
with BIO U120 Lab for BIO U119 1 SH

Professional Development

Complete the following course:

COP U101 Professional Development for Co-op 1 SH

College Algebra

Complete one course from the following list:

MTH U115 Applications of Algebra 4 SH
MTH U121 Precalculus 4 SH
MTH U141 Calculus 1 4 SH
MTH U142 Calculus 2 4 SH
MTH U151 Calculus and Differential Equations 4 SH
for Biology 1
MTH U152 Calculus and Differential Equations 4 SH
for Biology 2

Assessment

Complete the following course with corresponding lab:

NUR U103 Assessment across the Life Cycle 4 SH
with NUR U104 Lab for NUR U103 1 SH

Psychology

Complete the following course:

PSY U101 Foundations of Psychology 4 SH

SEMESTER 3**Ethics**

Complete one course from the following list:

BHS U510	Health-Care Ethics	4 SH
or PHL U165	Moral Problems in Medicine	4 SH

Microbiology

Complete the following course with corresponding lab:

BIO U121	Basic Microbiology	4 SH
with BIO U122	Lab for BIO U121	1 SH

Nurses as Caregivers

Complete the following course with corresponding lab:

NUR U101	Nurses as Caregivers	2 SH
with NUR U102	Lab for NUR U101	1 SH

Practice-Based Profession

Complete the following course with corresponding clinical lab:

NUR U200	Nursing as a Practice-Based Profession	3 SH
with NUR U201	Lab for NUR U200	2 SH

SEMESTER 4**Chemistry**

Complete the following course with corresponding lab:

CHM U101	General Chemistry for Health Sciences	4 SH
with CHM U102	Lab for CHM U101	1 SH
or CHM U211	General Chemistry 1	4 SH
with CHM U212	Lab for CHM U211	1 SH

Statistics

Complete the following course:

MTH U180	Statistical Thinking	4 SH
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Women and Families

Complete the following course with corresponding clinical lab:

NUR U302	Nursing with Women and Families	3 SH
with NUR U303	Lab for NUR U302	2 SH

Sociology Elective

Complete one course from the sociology department.

SEMESTER 5**Pathophysiology**

Complete the following course:

NUR U300	Pathophysiology	3 SH
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Acutely Ill Adults

Complete the following course with corresponding clinical lab:

NUR U306	Nursing with Acutely Ill Adults and Families	4 SH
with NUR U307	Lab for NUR U306	4 SH

Nursing Adults in the Community

Complete the following course with corresponding clinical lab:

NUR U310	Nursing Adults in the Community	1 SH
with NUR U311	Lab for NUR U310	1 SH

Pharmacology

Complete the following course:

PSC U340	Pharmacology for the Health Professions	4 SH
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SEMESTER 6 (SUMMER)**American Health-Care System**

Complete the following course:

BHS U260	The American Health-Care System	4 SH
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Free Elective

Complete any course outside nursing.

SEMESTER 7**Advanced Writing in the Disciplines**

Complete the following course with a grade of C or higher:

ENG U306	Advanced Writing in the Health Professions	4 SH
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Acutely Ill Child

Complete the following course with corresponding clinical lab:

NUR U500	Nursing with Acutely Ill Children and Families	3 SH
with NUR U501	Lab for NUR U500	2 SH

Nursing Children in Community

Complete the following course with corresponding clinical lab:

NUR U510	Caregiving: Children across the Continuum	1 SH
with NUR U511	Lab for NUR U510	1 SH

Vulnerable Populations

Complete the following course with corresponding clinical lab:

NUR U600	Nursing with Vulnerable Populations	3 SH
with NUR U601	Lab for NUR U600	2 SH

SEMESTER 8 (SUMMER)**Research**

Complete the following course:

BHS U450	Health-Care Research	4 SH
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Mental Health

Complete the following course with corresponding clinical lab:

NUR U400	Nursing and the Promotion of Mental Health	3 SH
with NUR U401	Lab for NUR U400	2 SH

SEMESTER 9**Health-Care System Course**

Complete the following course:

BHS U515	Health Policy	4 SH
or ECN U230	Health Care and Medical Economics	4 SH

Managing and Leading

Complete the following course:

NUR U610	Managing and Leading in Health Care	3 SH
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Practicum

Complete one of the following courses:

NUR U945	Comprehensive Nursing Practicum	4 SH
or NUR U946	Comprehensive Nursing Practicum 2	6 SH

Free Elective

Complete any course outside nursing.

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

SCHOOL OF PHARMACY

www.bouve.neu.edu/pharmacy

DANIEL C. ROBINSON, PHARM D

Professor, Dean of the School, and Associate Dean of the College

JENNIFER M. TRUJILLO, PHARM D, BCPS

Associate Clinical Specialist, Assistant Dean for Academic Affairs

Department of Pharmaceutical Sciences

Vladimir P. Torchilin, PhD, DSc, *Northeastern University*

Distinguished Professor and Chair

GEORGE D. BEHRAKIS CHAIR OF PHARMACEUTICAL BIOTECHNOLOGY AND PROFESSOR

Alexandros Makriyannis, PhD

ELEANOR M. BLACK CHAIR OF IMMUNOPHYSIOLOGY AND PHARMACEUTICAL BIOTECHNOLOGY AND PROFESSOR

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Ban-An Khaw, PhD

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Mark Douglass, PharmD

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Michelle Jacobs, PharmD

Jennifer L. Kirwin, PharmD, BCPS

Christopher Lyman, PharmD

Thomas Pomfret, PharmD

Jenny A. Van Amburgh, PharmD, CDE

Mark Watanabe, PharmD, PhD, BCPP

Pharmacists promote the safe and effective use of drugs by providing pharmaceutical care. In addition to preparing and dispensing medications prescribed by physicians, pharmacists provide information to patients about medications and their use; advise physicians and other health-care practitioners on the selection, dosages, interactions, and adverse effects of drug therapy; and monitor patient response to drug therapy.

The profession of pharmacy requires a significant amount of patient contact. Counseling by the pharmacist is considered essential in improving drug therapy outcomes. Traditionally, most pharmacists work in a community setting, such as a retail pharmacy, or in a health-care facility, such as a hospital. Community pharmacists dispense medications, counsel patients, and answer questions about prescription drugs. They provide information and make recommendations about over-the-counter medications, products, and medical equipment. Community pharmacy offers the opportunity to combine specialized pharmaceutical training

with skills in clinical patient management, business administration, and marketing. In addition to patient contact and counseling, community pharmacists also spend considerable time discussing health-related matters with the prescribing physicians. Pharmacists in health-care facilities dispense medications and collaborate with medical staff regarding the selection and effects of drugs. They also assess, plan, and monitor drug regimens and counsel patients on use of medications while in the hospital and at discharge. Hospital pharmacists have the opportunity to apply clinical skills in the management of drug therapy through participation in patient rounds, drug utilization review, and consultation with physicians on individual therapeutic regimens. Some pharmacists specialize in specific drug therapy areas, such as geriatrics or oncology (cancer).

Opportunities are expanding for pharmacists elsewhere. Health maintenance organizations, private practice groups, long-term-care facilities, home health care, the Public Health Service, the armed services, and law enforcement agencies such as the Federal Drug Enforcement Administration all require pharmacists. Other graduates find employment in drug development or marketing, colleges of pharmacy, or professional association management. Many graduates of the pharmacy program go on to leading graduate schools, residencies, or fellowship programs for specialized training.

The six-year Doctor of Pharmacy curriculum offers a blend of academic, cooperative education, and advanced practice experiences.

In order to be eligible for a pharmacy degree, a student must have satisfactorily completed all prescribed courses in his or her curriculum, have an overall 2.000 grade-point average (GPA), and must meet the cooperative education, advanced practice experience, and other requirements as stated in the *Bouvé College of Health Sciences Undergraduate Student Information Manual*. The undergraduate program, which is accredited by the Accreditation Council for Pharmacy Education (ACPE), subscribes to the standards established by ACPE and the American Association of Colleges of Pharmacy.

Pharmacy graduates must meet certain requirements to obtain a license from the state in which they want to practice. Those requirements include graduating from an accredited school of pharmacy, passing an examination given by a state board of pharmacy, and completing an internship.

The internship is a period of practical experience under the supervision of a registered pharmacist. Massachusetts requires 1,500 internship hours, of which 1,100 hours can be satisfied through cooperative education in years three through five. Students may apply for up to 400 internship hours during their advanced-practice experiences in year six.

Academic Progression Standards

Students must adhere to the program plan for their year of graduation. Any deviation from the prescribed curriculum will require permission and an approved plan of study from the Pharmacy Academic Standing Committee. Students must have an overall GPA of at least 2.700 to progress from second- to third-year status. In order to progress into the subsequent year

of the program, the student must have passed all professional courses and all professional prerequisites with a grade of C or better.

PharmD—Doctor of Pharmacy

SEMESTER 1

Biology 1

Complete the following course with corresponding lab:

BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH

Chemistry 1

Complete the following course with corresponding lab:

CHM U211	General Chemistry 1	4 SH
with CHM U212	Lab for CHM U211	1 SH

Introductory English

Complete the following course with a grade of C or higher:

ENG U111	College Writing	4 SH
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Precalculus or Psychology

Complete the following precalculus course, or if you place out of precalculus, complete the following psychology course:

MTH U121	Precalculus	4 SH
or PSY U101	Foundations of Psychology	4 SH

SEMESTER 2

Biology 2

Complete the following course with corresponding lab:

BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH

Chemistry 2

Complete the following course with corresponding lab:

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

Calculus

Complete the following course:

MTH U141	Calculus 1	4 SH
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Profession of Pharmacy

Complete the following course:

PMD U101	Introduction to the Profession of Pharmacy	1 SH
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Psychology or Free Elective

Complete the following psychology course if you have not already done so; otherwise, complete a free elective:

PSY U101	Foundations of Psychology	4 SH
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SEMESTER 3

Physics

Complete the following course with corresponding lab:

PHY U149	Physics for Pharmacy	4 SH
with PHY U150	Lab for PHY U149	1 SH

Organic Chemistry 1

Complete the following course with corresponding lab:

CHM U311	Organic Chemistry 1	4 SH
with CHM U312	Lab for CHM U311	1 SH

Human Physiology 1

Complete the following course with corresponding lab:

PSC U301	Human Physiology 1	3 SH
with PSC U302	Human Anatomy Lab	1 SH

Diversity

Complete the following course:

SOA U101	Peoples and Cultures	4 SH
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or complete a course from the list "Approved Courses: Diversity" on page 51.

SEMESTER 4**Co-op Seminar/Pharmacy Practice**

Complete the following course:

PMD U201	Introduction to Pharmacy Practice	1 SH
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Organic Chemistry 2

Complete the following course with corresponding lab:

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

Human Physiology 2

Complete the following course with corresponding lab:

PSC U303	Human Physiology 2	3 SH
with PSC U304	Human Physiology Lab	1 SH

Communications

Complete the following course:

PMD U310	Communications	3 SH
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Free Elective

Complete one free elective.

SEMESTER 5**Biochemistry**

Complete the following course:

PSC U320	Biochemistry	4 SH
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Pharmacology/Medicinal Chemistry 1

Complete the following course:

PSC U501	Pharmacology/Medicinal Chemistry 1	5 SH
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Writing for the Health Professions

Complete the following course with a grade of C or higher:

ENG U306	Advanced Writing in the Health Professions	4 SH
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Pharmaceutics 1

Complete the following course:

PSC U411	Pharmaceutics 1	4 SH
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Pharmacy Seminar

Complete the following course:

PMD U341	Pharmacy Seminar	1 SH
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SEMESTER 6**Health-Care Systems**

Complete the following course:

PMD U350	Health-Care Systems	3 SH
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Medical Microbiology

Complete the following course:

PSC U360	Medical Microbiology	3 SH
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Pharmacology/Medicinal Chemistry 2

Complete the following course:

PSC U502	Pharmacology/Medicinal Chemistry 2	5 SH
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Pharmaceutics Laboratory

Complete the following course:

PSC U419	Pharmaceutics Laboratory	1 SH
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Pharmaceutics 2

Complete the following course:

PSC U412	Pharmaceutics 2	4 SH
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SEMESTER 7**Pharmacokinetics and Biopharmaceutics**

Complete the following course:

PSC U430	Pharmacokinetics and Biopharmaceutics	3 SH
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Immunology

Complete the following course:

PSC U330	Immunology	3 SH
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Self-Care Therapeutics

Complete the following course:

PMD U440	Self-Care Therapeutics	4 SH
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Pathophysiology

Complete the following course:

PMD U401	Pathophysiology	4 SH
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Research Methodology and Biostatistics

Complete the following course:

PMD U450	Research Methodology and Biostatistics	4 SH
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SEMESTER 8 (SUMMER)**Therapeutic Drug Monitoring**

Complete the following course:

PMD U510	Therapeutic Drug Monitoring and Applications	2 SH
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Toxicology

Complete the following course:

TOX U570	Clinical Toxicology	2 SH
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Jurisprudence

Complete the following course:

PMD U530	Jurisprudence	3 SH
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Therapeutics 1

Complete the following course with corresponding seminar:

PMD U539	Therapeutics 1	3 SH
with PMD U540	Therapeutics Seminar 1	1 SH

Drug Information

Complete the following course:

PMD U560	Drug Information and Evaluation	3 SH
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Free Elective (Optional)

Optionally, complete one free elective.

SEMESTER 9**Therapeutics 2 and 3**

Complete the following two courses with corresponding seminar:

PMD G241	Therapeutics 2	4 SH
PMD G242	Therapeutics 3	4 SH
PMD G243	Therapeutics Seminar 2-3	1 SH

Pharmacy Care Management

Complete the following course:

PMD G250 Pharmacy Care Management 3 SH

Pharmaceutical Care Practice 1

Complete the following course:

PMD U569 Pharmaceutical Care Practice 2 SH

Free Elective

Complete one 4-semester-hour free elective. One of the last two free electives must be from the BHS department.

SEMESTER 10**Therapeutics 4 and 5**

Complete the following two courses with corresponding seminar:

PMD G244 Therapeutics 4 4 SH

PMD G245 Therapeutics 5 4 SH

PMD G246 Therapeutics Seminar 4–5 1 SH

Pharmacoeconomics

Complete the following course:

PMD G270 Pharmacoeconomics 4 SH

Pharmaceutical Care Practice 2

Complete the following course:

PMD U579 Pharmaceutical Care Practice 2 2 SH

Free Elective

Complete one 4-semester-hour free elective. One of the last two free electives must be from the BHS department.

YEAR 6**Advanced Practice Experience**

Select courses from the following list to complete six, six-week rotations for a total of 36 semester hours:

PMD G440 to PMD G468 6 SH each

GENERAL ELECTIVES

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

COOPERATIVE EDUCATION**UNIVERSITY-WIDE REQUIREMENTS**

210 total semester hours required

Minimum 2.000 GPA required

TOXICOLOGY

ROBERT A. SCHATZ, PHD

Associate Professor and Director

Toxicology—the study of injurious effects of chemicals on living organisms—has become increasingly important against a background of bioterrorism, rapid advances in DNA research, and a constant stream of new industrial chemicals in our environment. Toxicologists are responsible for: determining hazards from exposure to chemicals, setting limits of safety, identifying and measuring toxic chemicals by analysis, recommending safe use of chemicals, and determining clinical hazards and treatment of drug overdoses and chemical exposure.

Toxicology is a very diverse field, touching on drug research, pharmacology, chemical analysis, forensics, and environmental pollution, among other disciplines.

A minor in toxicology is available to students interested in environmental issues and in gaining insight into experimental approaches to evaluate drug and chemical toxicity. See page 465 for course descriptions.

Minor in Toxicology**REQUIRED COURSES**

Complete the following three courses:

TOX U574 Organ Systems Toxicology 3 SH

TOX U576 Experimental Toxicology 3 SH

TOX U578 Biochemical Toxicology Lab 3 SH

ELECTIVE

Complete one elective based on your area of interest:

MLS U299 Foundations of Forensic Lab Science 3 SH

TOX U570 Clinical Toxicology 2 SH

TOX U572 Environmental Toxicology 3 SH

GPA REQUIREMENT

2.000 GPA required in the minor