

UNIVERSITY-WIDE REQUIREMENTS

134 total semester hours required

Minimum 2.000 GPA required

MEDICAL LABORATORY SCIENCEwww.bouve.neu.edu/Health/mls.html

MARY LOUISE TURGEON, EDD, MT(ASCP), CLS(NCA)

*Acting Chair, Program Director, and Senior Clinical Specialist***ASSOCIATE PROFESSOR EMERITUS**

Britta L. Karlsson, MS, MT(ASCP)

VISITING ASSISTANT CLINICAL SPECIALIST

Carol Finn, MS, MT(ASCP)

LABORATORY COORDINATOR

Judith Baronas, BS, MT(ASCP)

The Department of Medical Laboratory Science prepares professionals in the laboratory disciplines of clinical chemistry, hematology, immunohematology, immunology, and microbiology. Medical laboratory scientists (medical technologists) perform diagnostic test procedures using state-of-the-art computerized analyzers. They are responsible for overseeing patient specimen collection, and for test accuracy, cost-effectiveness, and efficiency in reporting results to physicians. Physicians rely on laboratory tests to establish a diagnosis and to determine therapy. Traditionally, the program has prepared students for positions in health-care delivery, but, through cooperative education experiences, it also offers students the opportunity to explore positions in biological, chemical, and medical research, the biotechnology industry, and governmental agencies. Many graduates enter responsible positions in these areas. The curriculum also provides excellent preparation for advanced studies in graduate and professional schools.

The five-year program leads to a Bachelor of Science degree. Students begin the experiential learning phase of the program during their sophomore year, with cooperative education placements in regional institutions. Upperclass students have the opportunity for international placements. Recently students have had co-ops in Sweden and the United Kingdom. In their senior year, students receive formal clinical training at some of metropolitan Boston's finest health-care facilities. To enter clinical training, students must complete all prerequisite courses and maintain an acceptable grade-point average. Graduates of the Bachelor of Science program are eligible for national certification examinations as medical technologists and clinical laboratory scientists. Some states require additional licensure examinations. See pages 354–356 for course listings.

Minor Curriculum

This minor provides students majoring in other science fields an opportunity to explore the principles of the biological and

chemical sciences as applied in the medical laboratory.

Students may specialize in one of the five categorical areas of Medical Laboratory Science: clinical chemistry, hematology, immunology, immunohematology, or microbiology.

Postbaccalaureate Certificate Program

The postbaccalaureate certificate program in medical laboratory science enables students with a baccalaureate degree and sufficient background in the biological and chemical sciences to become eligible for certification in clinical microbiology, clinical chemistry, hematology, immunohematology, or immunology. Depending upon the specialty, students must complete 24–26 semester hours of professional course work, which must include applied study at an affiliated clinical site. After completing the program, students may be eligible for the national certification examination in a categorical area. Completion requires twelve to twenty-four months of part-time study depending on prerequisite course work, specialty chosen, and the timing of a student's entry into the program.

BS in Medical Laboratory Science**ENGLISH REQUIREMENT**

Complete the following course:

ENG U111 College Writing 4 SH

and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

DIVERSITY

Complete SOA U101 Peoples and Cultures 4 SH

or choose a course from the list "Approved Courses: Diversity" on page 48.

**MEDICAL LABORATORY SCIENCE
GENERAL STUDIES COURSES****Mathematics Courses**

Complete the following course:

MTH U121 Precalculus 4 SH

Anatomy and Physiology

Complete the following two courses with corresponding labs:

PSC U301 Human Physiology and Anatomy 1 3 SH

with PSC U302 Human Physiology and Anatomy 1— 1 SH
Lab

PSC U303 Human Physiology and Anatomy 2 3 SH

with PSC U304 Human Physiology and Anatomy 2— 1 SH
Lab**Biology Courses**

Complete the following four courses with corresponding labs:

BIO U111 General Biology 1 4 SH

with BIO U112 Lab for BIO U111 1 SH

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

or BIO U117 Integrated Anatomy and Physiology 1 4 SH

with BIO U118 Lab for BIO U117 1 SH

BIO U323	Biochemistry	4 SH
with BIO U324	Lab for BIO U323	1 SH
or BIO U119	Integrated Anatomy and Physiology 2	4 SH
with BIO U120	Lab for BIO U119	1 SH

Chemistry Courses

Complete the following four courses with 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

MEDICAL LABORATORY SCIENCE MAJOR COURSES

Bouvé Research Course

Complete the following course:

BHS U450	Health-Care Research	4 SH
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Introductory Courses

Complete the following two courses:

MLS U101	MLS Orientation	1 SH
MLS U315	Medical Immunology	3 SH

Laboratory Techniques

Complete the following two courses with corresponding labs:

MLS U201	Laboratory Techniques	2 SH
with MLS U202	Lab for MLS U201	1 SH
MLS U301	Fundamentals of Core Lab Techniques	3 SH
with MLS U302	Lab for MLS U301	2 SH

Advanced Courses

Complete the following seven courses with corresponding labs:

MLS U505	Medical Microbiology 1	4 SH
with MLS U506	Lab for MLS U505	1 SH
MLS U520	Fundamentals of Hematology	4 SH
with MLS U521	Lab for MLS U520	1 SH
MLS U530	Clinical Chemistry	4 SH
MLS U542	Medical Microbiology 2	2 SH
with MLS U543	Lab for MLS U542	2 SH
MLS U550	Immunohematology	3 SH
with MLS U551	Lab for MLS U550	1 SH
MLS U601	Pathophysiology and Clinical Correlation	3 SH
MLS U605	Management and Education	3 SH

Applied Study Courses

Complete the following six courses:

MLS U606	Lab Management Applications	1 SH
MLS U940	Microbiology Clinical Applied Study	4 SH
MLS U941	Immunology Clinical Applied Study	2 SH
MLS U942	Hematology Clinical Applied Study	3 SH
MLS U943	Clinical Chemistry Clinical Applied Study	4 SH
MLS U944	Immunohematology Clinical Applied Study	3 SH

GRADE REQUIREMENT

A grade of C or higher is required in all MLS and professional prerequisite courses.

GENERAL ELECTIVES

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

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS

136 total semester hours required

Minimum 2.000 GPA required

Minor in Hematology

REQUIRED COURSES

Complete the following four courses with corresponding labs:

BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH
BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH
CHM U211	General Chemistry 1	4 SH
with CHM U213	Recitation for CHM U211	0 SH
CHM U214	General Chemistry 2	4 SH
with CHM U215	Lab for CHM U214	1 SH

MLS COURSES

Complete the following four courses with corresponding labs:

MLS U201	Laboratory Techniques	2 SH
with MLS U202	Lab for MLS U201	1 SH
MLS U301	Fundamentals of Core Lab Techniques	3 SH
with MLS U302	Lab for MLS U301	2 SH
MLS U315	Medical Immunology	3 SH
MLS U520	Fundamentals of Hematology	4 SH
with MLS U521	Lab for MLS U520	1 SH

GPA REQUIREMENT

2.000 GPA required in the minor

Minor in Immunohematology

REQUIRED COURSES

Complete the following four courses with corresponding labs:

BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH
BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH
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

MLS COURSES

Complete the following four courses with corresponding labs:

MLS U201	Laboratory Techniques	2 SH
with MLS U202	Lab for MLS U201	1 SH
MLS U301	Fundamentals of Core Lab Techniques	3 SH
with MLS U302	Lab for MLS U301	2 SH
MLS U315	Medical Immunology	3 SH
MLS U550	Immunohematology	3 SH
with MLS U551	Lab for MLS U550	1 SH

GPA REQUIREMENT

2.000 GPA required in the minor

Minor in Immunology**REQUIRED COURSES**

Complete the following four courses with corresponding labs:

BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH
BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH
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

MLS COURSES

Complete the following six courses with corresponding labs:

MLS U201	Laboratory Techniques	2 SH
with MLS U202	Lab for MLS U201	1 SH
MLS U301	Fundamentals of Core Lab Techniques	3 SH
with MLS U302	Lab for MLS U301	2 SH
MLS U315	Medical Immunology	3 SH
MLS U505	Medical Microbiology 1	4 SH
with MLS U506	Lab for MLS U505	1 SH
MLS U550	Immunohematology	3 SH
with MLS U551	Lab for MLS U550	1 SH
MLS U941	Immunology Clinical Applied Study	2 SH

GPA REQUIREMENT

2.000 GPA required in the minor

Minor in Medical Laboratory Chemistry**REQUIRED COURSES**

Complete the following four courses with corresponding labs:

BIO U111	General Biology 1	4 SH
with BIO U112	Lab for BIO U111	1 SH
BIO U113	General Biology 2	4 SH
with BIO U114	Lab for BIO U113	1 SH
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

MLS COURSES

Complete the following three courses with corresponding labs:

MLS U201	Laboratory Techniques	2 SH
with MLS U202	Lab for MLS U201	1 SH
MLS U301	Fundamentals of Core Lab Techniques	3 SH
with MLS U302	Lab for MLS U301	2 SH
MLS U530	Clinical Chemistry	4 SH

GPA REQUIREMENT

2.000 GPA required in the minor

Minor in Microbiology**REQUIRED COURSES**

Complete the following four courses with corresponding labs:

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

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

MLS COURSES

Complete the following four courses with corresponding labs:

MLS U201	Laboratory Techniques	2 SH
with MLS U202	Lab for MLS U201	1 SH
MLS U315	Medical Immunology	3 SH
MLS U505	Medical Microbiology 1	4 SH
with MLS U506	Lab for MLS U505	1 SH
MLS U542	Medical Microbiology 2	2 SH

GPA REQUIREMENT

2.000 GPA required in the minor

PHYSICAL THERAPY

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

MEREDITH H. HARRIS, EdD, PT

Associate Professor and Chair

SUSAN LOWE, MS, PT, GCS

Associate Clinical Specialist and Associate Chair

ASSOCIATE PROFESSORS

Ann C. Noonan, EdD, PT

Robert Sikes, PhD

ASSISTANT PROFESSORS

Paul Canavan, PhD, PT

Lorna Hayward, EdD, PT

Karen J. Hutchinson, PhD, PT

Mohammad Jamali, PhD, PT

SENIOR CLINICAL SPECIALIST

Lawrence P. Cahalin, PT, MS, CCS

ASSOCIATE CLINICAL SPECIALISTS

Marie B. Corkery, MS, PT, FAAOMT

Diane F. Fitzpatrick, MS, PT

Ann C. Golub-Victor, MPH, PT, PCS

Sonya L. Larrieux, MA, PT

Alycia Markowski, MS, PT

Jaime Paz, MS, PT

Nancy H. Sharby, MS, PT

Susan H. Ventura, MEd, PT

ASSISTANT CLINICAL SPECIALIST

Mary J. Hickey, MHP, PT, OCS

Entry-Level DPT Program

The physical therapy program prepares its graduates to provide quality patient care in a time of changing concepts, trends, and challenges. Students learn to help clients gain functional independence and to recognize and manage the emotional and socioeconomic problems that affect recovery. The program in physical therapy culminates at the end of six years in an entry-level Doctor of Physical Therapy (DPT) degree.

Physical therapists provide services to patients and clients who have impairments, functional limitations, disabilities, or changes in physical function resulting from injury, disease, or other causes. In addition, physical therapists are involved in wellness initiatives, including screenings, health promotions, and educational activities that promote healthy lifestyles. They perform administrative duties and direct and supervise support personnel. Physical therapists interact and practice in collaboration with a variety of health-care professionals, including, but not limited to, physicians, dentists, nurses, educators, social workers, occupational therapists, speech-language pathologists, and audiologists.

Physical therapists function in a variety of settings, including community and university hospitals; rehabilitation centers; private practices; educational settings; extended-care facilities; freestanding outpatient clinics; home health agencies; and community, state, and federal agencies.

Through a commitment to excellence in teaching, research, and service, the Department of Physical Therapy develops individuals who are clinically competent, independent-thinking health-care professionals. The program incorporates the University's Academic Common Experience objectives and encourages the development of communication skills, critical and creative thinking, information literacy, and interpersonal skills. It also emphasizes the importance of developing historical, ethical, aesthetic, diverse, and personal perspectives, and of understanding the contexts provided by natural, social, and cultural worlds. In the classroom, students develop problem-solving skills, manual dexterity, and proficiency in technique and with equipment.

Beginning at the end of the second year of study, physical therapy students alternate semesters of academic study with semesters of cooperative education work experience. Students may be employed as physical therapy co-op students with increasing responsibilities commensurate with their academic studies, or they may perform other health-related preprofessional duties. These experiences provide an opportunity for the application and reinforcement of the lessons learned in the classroom and laboratory. Prior to graduation, students have twelve months of work-related experience.

In addition to cooperative education, the program includes twenty-eight weeks of clinical education. Clinical education allows the student to practice clinical skills under the supervision of a licensed physical therapist. Clinical sites across the United States, offering a wide range of specialties, participate in our clinical education program. Every effort is made to

accommodate individual circumstances, but students should be prepared to travel out of state for two of the three clinical courses. Availability of a car is also required, as most sites are not accessible by public transportation. All expenses associated with clinical education, including travel and housing, are the responsibility of the student. A very small number of sites offer student incentives including stipends, meals, and housing at low or no cost to the student, but that is becoming increasingly rare.

Students are accepted into the program as freshmen and do not need to reapply to the DPT phase of the program, provided they meet the academic standards. To progress in the program, students must maintain acceptable standards of scholarship and academic performance as outlined in the student handbook. Students must develop appropriate motor skills, professional behavior, and emotional maturity.

The program in physical therapy is accredited by the Commission on Accreditation in Physical Therapy Education of the American Physical Therapy Association.

Graduates of the Doctor of Physical Therapy (DPT) program are eligible to sit for the Physical Therapy Licensure Examination. See pages 400–403 for course descriptions.

DPT—Doctor of Physical Therapy

Pending Trustees' approval

Note: "TBD" stands for "to be determined."

ENGLISH REQUIREMENT

Complete the following course:

ENG U111 College Writing 4 SH

and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

DIVERSITY

Complete the following course:

SOA U101 Peoples and Cultures 4 SH

or choose a course from the list "Approved Courses: Diversity" on page 48.

PHYSICAL THERAPY GENERAL EDUCATION

Psychology

Complete the following two courses:

PSY U101 Foundations of Psychology 4 SH

PSY U404 Developmental Psychology 4 SH

Mathematics

Complete the following two courses:

MTH U121 Precalculus 4 SH

or MTH U141 Calculus 1 4 SH

MTH U280 Statistics and Software 4 SH

Biology

Complete the following two courses and corresponding labs:

BIO U117 Integrated Anatomy and Physiology 1 4 SH

with BIO U118 Lab for BIO U117 1 SH

BIO U119 Integrated Anatomy and Physiology 2 4 SH

with BIO U120 Lab for BIO U119 1 SH

Chemistry

Complete the following two courses and corresponding labs:

CHM U101	General Chemistry for Health Sciences	4 SH
with CHM U102	Lab for CHM U101	1 SH
CHM U104	Organic Chemistry for Health Sciences	4 SH
with CHM U105	Lab for CHM U104	1 SH

Physics

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
PHY U147	Physics for Life Sciences 2	4 SH
with PHY U148	Lab for PHY U147	1 SH

Health Sciences

Complete the following two courses and corresponding lab:

CES U500	Exercise Physiology 1	4 SH
with CES U501	Lab for CES U500	1 SH
PSC U340	Pharmacology for the Health Professions	4 SH

Electives

Complete 16 semester hours of undergraduate electives of your choice or work with an adviser to obtain a minor.

PHYSICAL THERAPY MAJOR REQUIREMENTS**Introductory Courses**

Complete the following three courses and corresponding labs:

PTH U201	Foundation of Physical Therapy	3 SH
with PTH U202	Lab for PTH U201	1 SH
PTH U203	Human Skills Development	2 SH
PTH U204	Therapeutic Modalities	1 SH
with PTH U205	Lab for PTH U204	1 SH

Intermediate Courses

Complete the following six courses and corresponding labs:

PTH U301	Gross Anatomy	4 SH
with PTH U302	Lab for PTH U301	1 SH
PTH U303	Kinesiology	3 SH
with PTH U304	Lab for PTH U303	1 SH
PTH U308	Neuroscience	4 SH
with PTH U309	Lab for PTH U308	1 SH
PTH U310	Pathology	4 SH
PTH U400	Motor Control	3 SH
with PTH U402	Lab for PTH U400	1 SH
PTH U404	Psychosocial Management	2 SH

Advanced Courses

Complete the following five courses and corresponding labs:

BHS U450	Health-Care Research	4 SH
PTH U503	Cardiovascular and Pulmonary Management	4 SH
with PTH U504	Lab for PTH U503	1 SH
PTH U505	Musculoskeletal Management 1	4 SH
with PTH U506	Lab for PTH U505	1 SH
PTH UTBD	Integumentary/Advanced Modalities (DPT)	2 SH
with PTH UTBD	Lab for PTH UTBD	1 SH
PTH UTBD	Clinical Integration: Evidence and Practice (DPT)	3 SH

Professional Seminar

Complete the following four courses:

COP U101	Professional Development	1 SH
PTH U305	Physical Therapy Professional Seminar 1	2 SH
PTH U510	Physical Therapy Professional Seminar 2	2 SH
PTH GTBD	Research Seminar (DPT)	1 SH

Professional Courses

Complete the following seven courses and corresponding labs:

PTH G215	Assistive Technology	3 SH
with PTH G216	Lab for PTH G215	1 SH
PTH G219	Physical Therapy Administration	4 SH
PTH G221	Neurological Management 2	4 SH
with PTH G222	Lab for PTH G221	1 SH
PTH G223	Musculoskeletal Management 2	4 SH
with PTH G224	Lab for PTH G223	1 SH
PTH UTBD	Clinical Integration 2 (DPT)	2 SH
PTH G243	Health Assessment and Wellness	3 SH
PTH U517	Neurological Management 1	4 SH
with PTH U518	Lab for PTH U517	1 SH

Clinicals

Complete the following four courses:

PTH G441	Clinical Education 1	6 SH
PTH G442	Clinical Education 2	6 SH
PTH GTBD	Clinical Education 3 (DPT)	9 SH
PTH G444	Clinical Education Integration Seminar (DPT)	2 SH

Business Education

Complete the following course in business education:

PTH GTBD	Title TBD	2 SH
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Diagnostic Imaging

Complete the following course in diagnostic imaging:

PTH GTBD	Title TBD	3 SH
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Differential Diagnostic

Complete the following course in differential diagnostics:

PTH GTBD	Title TBD	3 SH
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PHYSICAL THERAPY ELECTIVES/PROJECT**Physical Therapy Project**

Complete the following two courses or two related physical therapy courses:

PTH U512	Physical Therapy Project 1	3 SH
PTH UTBD	Physical Therapy Project 2 (DPT)	2 SH

Advanced Topics

Complete two courses from the following list:

PTH G231	Advanced Physical Therapy Topics in Pediatrics	2 SH
PTH G232	Advanced Physical Therapy Topics in Spine	2 SH
PTH G233	Advanced Physical Therapy Topics in Orthopedics	2 SH
PTH G234	Advanced Physical Therapy Topics in Alternative Medicine	2 SH
PTH G235	Advanced Physical Therapy Topics in Geriatrics	2 SH
PTH G236	Advanced Physical Therapy Topics in Cardiovascular/Pulmonary	2 SH
PTH G237	Advanced Special Topics in Physical Therapy	2 SH

GRADUATE ELECTIVE

Complete one graduate elective.

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**

213 total semester hours required

Minimum 2.000 GPA required

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY

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

LINDA J. FERRIER, PhD

Associate Professor and Chair

PROFESSOR

Mary Florentine, PhD

ASSOCIATE PROFESSORS

Therese M. O'Neil-Pirozzi, ScD

Robert Redden, EdD

Ralf W. Schlosser, PhD

ASSISTANT PROFESSOR

Rupal Patel, PhD

SENIOR RESEARCH SCIENTIST

Sharon Y. Manuel, PhD

CLINICAL SPECIALISTS

Denise J. Frankoff, MA

Marjorie North, MA

ASSOCIATE CLINICAL SPECIALIST

Sandra S. Cleveland, MS

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 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.

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 neurologic 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 special needs/education, allied health, computer literacy, ethics, multicultural/diversity issues, and psychology. The curriculum provides a solid foundation in speech-language pathology and audiology and arts and 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.

Students may participate in the Bouvé Spanish Language and Latin Culture Program. This program consists of five courses designed to increase Spanish language skills and to prepare students to work with culturally diverse clients. The program provides students with an opportunity to collaborate on case studies with Spanish-speaking allied health students from the University of Puerto Rico.

A unique aspect of the speech-language pathology and audiology program is an accelerated graduate provision for students who qualify at the end of year three. 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 Northeastern University's graduate program in speech-language pathology and audiology. In effect, students who enter the accelerated master's degree track will complete the Bachelor of Science requirements within the framework of

our graduate program. They will be eligible for the Master of Science and Bachelor of Science degrees and meet national certification requirements at the end of their fifth year of matriculation. The accelerated track 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 and Hearing Center are fully accredited by the American Speech-Language-Hearing Association. See pages 405–406 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

ENGLISH REQUIREMENT

Complete the following course:

ENG U111 College Writing 4 SH
and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

DIVERSITY

Complete SOA U101 Peoples and Cultures 4 SH
or choose a course from the list “Approved Courses: Diversity” on page 48.

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY GENERAL EDUCATION REQUIREMENTS

Mathematics Requirement

Complete the following two courses:

MTH U121 Precalculus 4 SH
or MTH U141 Calculus 1 4 SH
MTH U280 Statistics and Software 4 SH

Anatomy and Physiology Requirement

Complete the following two courses with corresponding labs:

BIO U117 Integrated Anatomy and Physiology 1 4 SH
with BIO U118 Lab for BIO U117 1 SH
BIO U119 Integrated Anatomy and Physiology 2 4 SH
with BIO U120 Lab for BIO U119 1 SH

Psychology and Linguistics

Complete the following three courses and one psychology elective:

PSY U101 Foundations of Psychology 4 SH
PSY U404 Developmental Psychology 4 SH
PSY U466 Cognition 4 SH

Pharmacology

Complete the following course:

PSC U340 Pharmacology for the Health Professions 4 SH

Education

Complete one course from the following list or an alternative education course:

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

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY MAJOR REQUIREMENTS

College Required Courses

Complete the following three courses:

BHS U300 Communication Skills for the Health Professions 4 SH
BHS U450 Health-Care Research 4 SH
BHS U510 Health-Care Ethics 4 SH

Introductory Courses

Complete the following seven courses:

SLA U101 Introduction to Speech and Hearing 4 SH
SLA U102 Language Development 4 SH
SLA U103 Anatomy and Physiology of the Vocal Mechanism 4 SH
SLA U200 Phonetics 4 SH
SLA U201 Introduction to Co-op 1 SH
SLA U203 Introduction to Audiology 4 SH
SLA U205 Speech and Hearing Science 4 SH

Advanced Courses

Complete the following four courses:

SLA U501 Language Disorders in Children 4 SH
SLA U503 Aural Rehabilitation 4 SH
SLA U600 Clinical Procedures 4 SH
SLA U650 Seminar in SLP and Audiology 4 SH

Research

Complete the following course:

SLA U701 Clinical Research Directed Study 1 SH

Electives

Select three courses from the following list. An approved minor may also satisfy this requirement.

CBA U101 Introduction to Business 4 SH
or any courses from the following departments: ACC, AFR, ARC, ART, ASL, BIO, CHE, CHM, CIN, CIV, CJ, CMN, CS, ECE, ECN, ED, ENG, ENT, ENV, FIN, GEO, HRM, HS, HST, IAF, INB, INT, IS, JRN, LIN, LNA, LNC, LNF, LNG, LNH, LNI, LNJ, LNL, LNM, LNR, LNS, MGT, MIM, MKT, MMS, MSC, MTH, MUS, PHL, PHY, POL, PSY, SCM, SOA, SOC, or THE.

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

SCHOOL OF NURSING

www.bouve.neu.edu/Nursing

NANCY HOFFART, PHD, RN

Professor and Dean

MARY ANNE GAUTHIER, EDD, RN

Director of Undergraduate Program and Associate Professor

BARBARA R. KELLEY, EDD, MHP, MS, RN, CPNP

Director of the Graduate Program and Associate Professor

CAROL GLOD, PHD, RN, CS, FAAN

Research Director and Professor

WENDY WILLIAMS, BSN, RN

Clinical Placement Administrator

PROFESSOR

Patricia M. Meservey, PhD

ASSOCIATE PROFESSORS

Jane F. Aroian, MSN, EdD, RN

Michelle A. Beauchesne, MS, DNSc, RN, PNP

Olivia M. Breton, MEd, RN

Margaret H. Christensen, PhD, RN, CCRN

Dorett Hope, MEd, EdD

Elizabeth M. Howard, MS, PhD, RN, ANP

Magdalena A. Mateo, PhD, RN, FAAN

Susan J. Roberts, MS, DNSc, RN, ANP

Rachel Zachariah, MS, DNSc, RN

ASSISTANT PROFESSORS

Steve Alves, PhD, CRNA

Rhonda M. Board, MS, PhD, CCRN

Cynthia Dakin, PhD, RN

Ann Dylis, PhD, RN

Margaret Hamilton, DNSc, RN, CS

Angela Nannini, PhD, RN, FNP-C

VISITING ASSOCIATE PROFESSOR

Lynn Babington, PhD, RN

ASSOCIATE CLINICAL SPECIALISTS

Ann M. Kennedy, MS, RN

Patricia A. Kiladis, MS, RN

Mary Suzanne Tarmina, MS, PhD, RN, FNP

ASSISTANT CLINICAL SPECIALISTS

Janet Dewan, MS, RN

Brenda Douglas, MS, RN

Ann Hill, MS, RN, CNA, BC

Sally Marks, MSN

Virginia Minichiello, MSN, RN, ANP

VISITING ASSISTANT CLINICAL SPECIALIST

Janet Briand-McGowan, MS, RN

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.

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, eat, 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 baccalaureate nursing program provides the educational background needed for graduate study in nursing specialties. Successful completion of the baccalaureate program allows graduates to take the National Council Licensing Examination (NCLEX-RN) to become registered nurses.

The program is accredited by the National League for Nursing Accreditation Commission, has preliminary approval from the Commission on Collegiate Nursing Education, and is approved by the Board of Registration in Nursing of the Commonwealth of Massachusetts. 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 370–372 for course descriptions.

Special Requirements

Each year students must receive a health clearance. Students in the School of Nursing are required to wear the approved school uniform in some clinical laboratory areas during academic semesters. All students assigned to a clinical nursing course must be certified in cardiopulmonary resuscitation (CPR); annual recertification is required. In addition Criminal Offender Record Information (CORI) is required and updated contingent to clinical requirements. Students enrolled in the clinical courses must have access to a car to travel to assigned agencies and are responsible for their own transportation costs.

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 part-time University College evening section. The program length varies, depending on the individual's previous educational experience and ability to achieve advancement through the development of a portfolio to validate prior learning. Students may take the program on a part-time basis, thus allowing them to continue working while enrolled in school.

BSN—Bachelor of Science in Nursing

ENGLISH REQUIREMENT

Complete the following course:

ENG U111	College Writing	4 SH
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and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

DIVERSITY

Complete the following course:

NUR U210	Influences on Health and Illness	3 SH
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NURSING GENERAL EDUCATION REQUIREMENTS

Mathematics and Statistics Courses

Complete one mathematics and one statistics course:

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

STATISTICS

ECN U350	Statistics	4 SH
MTH U180	Statistical Thinking	4 SH
MTH U280	Statistics and Software	4 SH
POL U400	Quantitative Techniques	4 SH
PSY U320	Statistics in Psychological Research	4 SH
with PSY U321	Lab for PSY U320	1 SH
SOC U320	Statistical Analysis in Sociology	4 SH

Psychology

Complete the following course:

PSY U101	Foundations of Psychology	4 SH
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Sociology

Complete one elective from sociology.

Anatomy and Physiology

Complete the following two courses with corresponding labs:

BIO U117	Integrated Anatomy and Physiology 1	4 SH
with BIO U118	Lab for BIO U117	1 SH
BIO U119	Integrated Anatomy and Physiology 2	4 SH
with BIO U120	Lab for BIO U119	1 SH

Microbiology

Complete the following course with corresponding lab:

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

Chemistry

Complete one chemistry course with its 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

NURSING MAJOR—BOUVÉ SCIENCE COURSES

Influences on Health

Complete the following course:

BHS U105	Nutrition	4 SH
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Health-Care System

Complete the following four courses:

BHS U250	The American Health-Care System	3 SH
BHS U450	Health-Care Research	4 SH
BHS U510	Health-Care Ethics	4 SH
or PHL U165	Moral Problems in Medicine	4 SH
BHS U515	Health Policy	4 SH
or ECN U230	Health-Care and Medical Economics	4 SH

Pharmacology

Complete the following course:

PSC U340	Pharmacology for the Health Professions	4 SH
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NURSING MAJOR REQUIREMENTS

Introductory Courses

Complete the following four courses with corresponding labs:

NUR U101	Nurses as Caregivers	2 SH
with NUR U102	Lab for NUR U101	1 SH
NUR U103	Assessment across the Life Cycle	4 SH
with NUR U104	Lab for NUR U103	1 SH
NUR U200	Nursing as a Practice-Based Profession	3 SH
with NUR U201	Lab for NUR U200	2 SH
NUR U210	Influences on Health and Illness	3 SH

Intermediate Courses

Complete the following five courses with corresponding labs:

NUR U300	Pathophysiology	3 SH
NUR U302	Nursing with Women and Families	3 SH
with NUR U303	Lab for NUR U302	2 SH
NUR U306	Nursing with Acutely Ill Adults and Families	4 SH
with NUR U307	Lab for NUR U306	4 SH
NUR U310	Nursing Adults in the Community	1 SH
with NUR U311	Lab for NUR U310	1 SH
NUR U400	Nursing and the Promotion of Mental Health	3 SH
with NUR U401	Lab for NUR U400	2 SH

Advanced Courses

Complete the following four courses with corresponding labs:

NUR U500	Nursing with Acutely Ill Children and Families	3 SH
with NUR U501	Lab for NUR U500	2 SH
NUR U510	Caregiving: Children across the Continuum	1 SH
with NUR U511	Lab for NUR U510	1 SH
NUR U600	Nursing with Vulnerable Populations	3 SH
with NUR U601	Lab for NUR U600	2 SH
NUR U610	Managing and Leading in Health Care	3 SH

Practicum

Complete one of the following two courses:

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

GRADE REQUIREMENT

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

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

Electives

The School of Nursing offers electives that enable students to satisfy their personal objectives. They include Independent Study, Wellness, and Perioperative Nursing.

SCHOOL OF PHARMACY

www.bouve.neu.edu/pharmacy

DANIEL C. ROBINSON, PHARM D

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

Department of Pharmaceutical Sciences

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

Distinguished Professor and Chair

PROFESSORS

Richard C. Deth, PhD

Roger W. Giese, PhD

Ban-An Khaw, PhD

Barbara L. Waszczak, PhD

ASSOCIATE PROFESSORS

Mansoor M. Amiji, PhD

Norman R. Boisse, PhD

Jonathan Freedman, PhD

Ralph H. Loring, PhD

Robert A. Schatz, PhD

ASSISTANT PROFESSORS

Robert Campbell, PhD

Tara Pouyani, PhD

Volkmar Weissig, PhD

Jiang Zheng, PhD

LECTURER

Eugene A. Bernstein, PhD

Department of Pharmacy Practice

John R. Reynolds, PharmD, *Professor and Chair*

PROFESSOR

Gerald E. Schumacher, PharmD, PhD

ASSISTANT PROFESSOR

Christian Teter, PharmD, BCPP

ASSOCIATE PROFESSORS

Judith T. Barr, ScD

Robert J. Cersosimo, PharmD, BCOS

John Devlin, PharmD, BCPS, FCCM

S. James Matthews, PharmD

CLINICAL ASSISTANT PROFESSOR

Steven Gabardi, PharmD, BCPS

CLINICAL ASSOCIATE PROFESSOR

Michelle M. Chapman, PharmD, BCPS

ASSOCIATE CLINICAL SPECIALISTS

Todd A. Brown, MHP

Jennifer M. Trujillo, PharmD, BCPS

ASSISTANT CLINICAL SPECIALISTS

Debra Copeland, PharmD
 Margarita V. DiVall, PharmD, BCPS
 Mark Douglass, PharmD
 Michael J. Gonyeau, PharmD, BCPS
 Yolanda M. Hardy, PharmD
 Michelle Jacobs, PharmD
 Jennifer L. Kirwin, PharmD, BCPS
 Christopher Lyman, PharmD
 Thomas Pomfret, PharmD
 Jenny A. Van Amburgh, PharmD
 Mark Watanabe, PharmD, PhD, BCPP

Pharmacists promote the safe use of drugs by providing pharmaceutical care. The expanding role of the pharmacist as a clinical drug consultant to physicians, nurses, health-care professionals, and patients has broadened the scope of professional opportunities. In addition to preparing and dispensing medications prescribed by physicians, pharmacists are actively involved in improving drug therapy outcomes through direct involvement with patients and other members of the health-care team.

The School of Pharmacy also offers careers in management, research, manufacturing, government, and education. Many graduates of the pharmacy program go on to leading graduate schools, residencies, or fellowships programs for specialized training.

The curriculum offers a blend of academic and cooperative education experiences. The entry-level, cooperative education six-year Doctor of Pharmacy program opened for entering freshmen in the fall of 1997.

In order to be eligible for any 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 American Council on Pharmaceutical 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 graduation 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 supervised 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.

The profession of pharmacy requires a significant amount of patient contact. Counseling by the pharmacist is considered essential to the effective and safe use of medications. 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. Hospital pharmacists are responsible for medication control and distribution. In addition, they 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. 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. A growing number of pharmacy graduates seek additional degrees and training in pharmaceutical research (PhD), business administration (MBA), or law (JD) to complement their strong pharmacy training.

PharmD—Doctor of Pharmacy**ENGLISH REQUIREMENT**

Complete the following course:

ENG U111 College Writing 4 SH

and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

DIVERSITY

Complete SOA U101 Peoples and Cultures 4 SH
 or choose a course from the list “Approved Courses: Diversity” on page 48.

PHARMACY GENERAL EDUCATION REQUIREMENTS**Psychology Course**

Complete the following course:

PSY U101 Foundations of Psychology 4 SH

Mathematics Course

Complete the following course:

MTH U141 Calculus 1 4 SH

Biology Courses

Complete the following two courses with corresponding labs:

BIO U111 General Biology 1 4 SH

with BIO U112 Lab for BIO U111 1 SH

BIO U113 General Biology 2 4 SH

with BIO U114 Lab for BIO U113 1 SH

Chemistry Courses

Complete the following four courses with 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

Anatomy and Physiology

Complete the following two courses with corresponding labs:

PSC U301	Human Physiology and Anatomy 1	3 SH
with PSC U302	Human Physiology and Anatomy 1— Lab	1 SH
PSC U303	Human Physiology and Anatomy 2	3 SH
with PSC U304	Human Physiology and Anatomy 2— Lab	1 SH

Physics Course

Complete the following course with corresponding lab:

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

Elective Courses

Complete two courses from a nonscience field:

ACC, AFR, ARC, ART, ASL, CJ, CMN, ECN, ED, ENG, ENT, FIN, HRM, HS, HST, IAF, INB, INT, JRN, LIN, LNA, LNC, LNF, LNG, LNH, LNI, LNJ, LNL, LNM, LNR, LNS, MGT, MKT, MMS, MSC, MUS, PHL, POL, PSY, SCM, SOA, SOC, or THE.

PHARMACY MAJOR**Introductory Courses**

Complete the following three courses:

PMD U101	Introduction to the Profession of Pharmacy	1 SH
PMD U201	Introduction to Pharmacy Practice	1 SH
PMD U310	Communications	3 SH

Professional Series 1

Complete the following nine courses:

PMD U341	Pharmacy Seminar	1 SH
PMD U350	Health-Care Systems	3 SH
PSC U320	Biochemistry	4 SH
PSC U360	Medical Microbiology	3 SH
PSC U411	Pharmaceutics 1	4 SH
PSC U412	Pharmaceutics 2	4 SH
PSC U419	Pharmaceutics Laboratory	1 SH
PSC U501	Pharmacology/Medicinal Chemistry 1	5 SH
PSC U502	Pharmacology/Medicinal Chemistry 2	5 SH

Professional Series 2

Complete the following ten courses with corresponding seminar:

PMD U401	Pathophysiology	4 SH
PMD U440	Self-Care Therapeutics	4 SH
PMD U450	Research Methodology and Biostatistics	4 SH
PMD U510	Therapeutic Drug Monitoring and Applications	2 SH
PMD U530	Jurisprudence	3 SH
PMD U539	Therapeutics 1	3 SH
with PMD U540	Therapeutics Seminar 1	1 SH
PMD U560	Drug Information and Evaluation	3 SH
PSC U330	Immunology	3 SH
PSC U430	Pharmacokinetics and Biopharmaceutics	3 SH
TOX U570	Clinical Toxicology	2 SH

Professional Series 3

Complete the following eight courses with corresponding seminars:

PMD G241	Therapeutics 2	4 SH
with PMD G242	Therapeutics 3	4 SH
and PMD G243	Therapeutics Seminar 2–3	1 SH
PMD G244	Therapeutics 4	4 SH
with PMD G245	Therapeutics 5	4 SH
and PMD G246	Therapeutics Seminar 4–5	1 SH
PMD G250	Pharmacy Care Management	3 SH
PMD G270	Pharmacoeconomics	4 SH
PMD U569	Pharmaceutical Care Practice	2 SH
PMD U579	Pharmaceutical Care Practice 2	2 SH

Advanced Practice Experience

Complete 36 hours of clinical experience from PMD G440 through PMD G468.

Interdisciplinary Elective

Complete one course from the BHS department.

Pharmacy Electives

Complete two courses from the pharmacy department.

GRADE REQUIREMENT

A grade of C or higher is required in all PMD and PSC courses.

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 pages 417–418 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:

TOX U570	Clinical Toxicology	2 SH
TOX U572	Environmental Toxicology	3 SH
MLS U299	Foundations of Forensic Lab Science	3 SH

GRADE REQUIREMENT

2.000 GPA required in the minor