

## School of Pharmacy

## PHARMACY

[www.pharmacy.pitt.edu](http://www.pharmacy.pitt.edu)

The primary role of the School of Pharmacy is to prepare students to enter the practice of pharmacy and to function as professionals responsible for effective, safe, and economical use of medications by society. The pharmacy curriculum, which integrates science with practice, reflects the faculty's dedication to the profession and a commitment to educational excellence.

The School of Pharmacy offers a four-year professional pharmacy program leading to a Doctor of Pharmacy (PharmD) degree. The program is six years in length, and requires two years of pre-professional courses and four years of professional courses. The curriculum is aimed at providing a general education in social sciences, natural science, and humanities; the foundation necessary to deal with problems related to drugs or drug therapy; a foundation in the many issues involved in pharmacy and health care; and experiences in a variety of contemporary pharmacy practice settings and environments. Clinical experience and training begin in the first term and continue throughout the program. Fundamental concepts of physiology, biochemistry, and pharmaceutical care are learned in the first year and are reinforced through case analysis, laboratory sessions, and clinical practice. Personal management skills are taught so that students learn to plan and organize their time, and set priorities and goals. The basic clinical skills required to deliver pharmaceutical care are taught and reinforced at clinical sites. Drug dosage forms and drug delivery systems are introduced as students learn about the drug development process.

The School of Pharmacy's classrooms, student areas, and research laboratories are state of the art. The School of Pharmacy is located in Oakland, amidst the University of Pittsburgh Medical Center (UPMC), an internationally renowned academic medical center. UPMC is affiliated with the other schools of the health sciences and provides the region's largest and finest network of tertiary, specialty, and community hospitals. Collectively, these facilities provide one of the nation's greatest, most complete health centers for teaching, patient care, and research in the health sciences.

#### Admission

The pharmacy program requires two years of preparatory work in the School of Arts and Sciences and four years of professional education and training in the School of Pharmacy. There are two types of admission to the School of Pharmacy:

##### Conditional Admission

The School of Pharmacy does not admit freshmen directly to the professional program. However, the School offers conditional acceptance to a limited number of outstanding high school seniors who enroll at one of the University of Pittsburgh campuses. Conditional acceptance is available to about 64 students and is based on an applicant's class rank, grade point average, curriculum (this must include biology, chemistry, and either physics, or second level biology or chemistry and at least four units of mathematics through trigonometry or calculus), and SAT or ACT result. Because many students are interested in the conditional admission program, it is recommended that students apply very early in their senior year, as the program closes quickly.

Some applicants to the conditional acceptance program will be offered conditional acceptance; a small number of applicants will be offered the opportunity to interview for conditional acceptance, and others who are offered admission to the School of Arts and Sciences will be eligible to take the prerequisite classes and apply to the School of Pharmacy for open admission (see below) at the junior year level. Criteria for conditional admission is subject to change. For specific current information, please go to [www.pharmacy.pitt.edu](http://www.pharmacy.pitt.edu).

Students who receive the conditional admission are expected to perform well in their preprofessional courses regardless of SAT I scores. In order to secure a place in the PharmD Program, students must earn:

- a letter grade of a C or better in all preprofessional courses with no repeat of preprofessional courses
- a 3.25 or greater overall GPA in preprofessional courses
- a 3.25 or greater GPA in the required Math and Science courses

To exercise the conditional admission, all applicants, must:

- interview as a part of the PharmD application process
- take the Pharmacy College Admissions Test (PCAT)
- complete the PharmCAS application and the
- Supplemental Application by the deadlines

Students who satisfactorily meet these performance criteria will be admitted into the PharmD Program.



## Open Admission

Qualified University of Pittsburgh students and students attending other universities are encouraged to apply to the professional program for entry at the junior-year level. The requirements to be considered for admission to the School of Pharmacy's professional program are: 1) completion of the preprofessional course requirements; 2) overall GPA of 3.0 or greater in the preprofessional courses with no grade below C in a required course; 3) completion of an application through PharmCAS, a Web-based application service [www.pharmcas.org] that includes three letters of recommendation; 4) submission of scores on PCAT, the Pharmacy College Admissions Test [www.pcatweb.info]; 5) completion of a supplemental application form.; and 6) selected applicants will be required to participate in the interview process (interviews are by invitation only).

## Requirements for Major—Pre-Professional Preparation in Arts and Sciences

62 credits, distributed as follows:

General Biology I and II w/lab (8 cr.)	Statistics (3-4 cr.)
General Chemistry I and II w/lab (8 cr.)	Psychology (Intro) (3 cr.)
Organic Chemistry I and II w/lab (8 cr.)	Economics (Intro, Micro, or Macro—3 cr.)
English Composition (6 cr.)	Electives (18 cr.)*
Calculus (3-4 cr.)	

\* At least 6 credits in the humanities and 6 credits in the social sciences are required. A course in public speaking is recommended.

Freshman Studies, 1 credit, is recommended for University of Pittsburgh freshmen.

## Upper-level Course Work in the School of Pharmacy (4 years of professional curriculum)

121 credits, distributed as follows:

### PROFESSIONAL YEAR 1

PHARM 5110 and 5111 Profession of Pharmacy 1 and 2 (8 cr. total)

This class supports your development of competence in four major areas: clinical skills, the psychosocial dimensions of pharmacy practice, managing as a professional pharmacist, and professional inquiry.

\*PHARM 5112 and 5113 Experiential Learning 1 and 2 (2 cr. total)

Field-based experiences that provide students with opportunities to examine the role of pharmacists in the community. Students work with community agencies that provide essential services to underserved populations. Students are expected to develop communication skills with an awareness of the skills and attitudes required to practice pharmacy.

PHARM 5114 and 5115 Anatomy and Physiology 1 and 2 (6 cr. total)

This course sequence provides an integrated presentation of human anatomy and physiology, based on organ systems and their role in homeostasis. Information about mechanisms of action of selected drugs is presented.

PHARM 5116 and 5117 Biochemistry 1 and 2 (6 cr. total)

This course sequence enables you to appreciate the chemical processes that govern the function of living systems, the molecular basis of disease, the biochemical rationale for the therapeutic use of drugs, and the biochemical basis of clinical diagnostic procedures.

PHARM 5118 Principles of Drug Action (4 cr.)

Introduces students to basic principles of drug-receptor interactions, drug design and development, pharmacokinetics and pharmacodynamics, and structure-activity relationships.

PHARM 5119 Drug Development 1 (4 cr.)

This course traces the development of drugs from discovery through the early stages of the drug approval process. Students will be introduced to a variety of drug sources and the principles of drug analysis, metabolism, and the approval process.

### PROFESSIONAL YEAR 2

PHARM 5210 and 5211 Profession of Pharmacy 3 and 4 (7 cr. total)

Supports students' development of competence in four major areas: clinical skills, social science in pharmacy, managing as a professional pharmacist, and professional inquiry.

\*PHARM 5212 and 5213 Experiential Learning 3 and 4 (2 cr. total)

Field-based experiences that provide students with opportunities to develop proficiency in carrying out the pharmaceutical care process. Students are expected to develop basic dispensing and counseling skills and collect and interpret data from the practice site. Students practice inquiry skills by generating questions from their practice site that are answered using a systematic approach for answering drug-related questions.

PHARM 5214 and 5215 Pharmacotherapy of Infectious Disease 1 and 2 (8 cr. total)

Students will be introduced to the organisms responsible for infectious disease, the epidemiology and pathophysiology of infection, the immunology of host defenses, and the thought processes leading to cost-effective and safe antimicrobial drug use. You will select and monitor the therapy of various infections.

PHARM 5216 Pharmacotherapy of Cardiovascular Disease (4 cr.)

Provides a comprehensive evaluation of the pathophysiology and treatment of cardiovascular disease and focuses on the pharmacology and therapeutic use of cardiovascular drugs.

PHARM 5218 Drug Development 2: Pharmacokinetics (4 cr.)

Provides students with more advanced understanding of the mathematical relationships that describe the rate and extent of drug absorption, distribution, metabolism, and elimination. Students are expected to design rational therapeutic regimens that account for inter-individual variations in these pharmacokinetic parameters.

PHARM 5219 Drug Development 3: Dosage Forms (4 cr.)

This is a systematic study of the physio-chemical principles involved in the development of pharmaceutical dosage forms.

PHARM 5223 Gastroenterology/Nutrition (2 cr.)

Students demonstrate and apply concepts of pathophysiology, medicinal chemistry, pharmacology, and therapeutics in the evaluation and treatment of selected gastrointestinal diseases and nutritional deficiencies.

PHARM 5225 Advanced Pharmaceutical Care 1 (1 cr.)

Students integrate knowledge and skills to design, monitor, assess, and refine safe and cost-effective treatment plans, as well as design appropriate information materials for patients, caregivers, and health professionals. Using capstone experiences they will manage pharmaceutical care problems in ambulatory and acute care settings.

**PROFESSIONAL YEAR 3**

PHARM 5310 and 5311 Profession of Pharmacy 5 and 6 (5 cr. total)

This is a continuation of the earlier classes. In this course, you will learn about the legal regulation of pharmacy practice, the principles of pharmacoecomics, drug use and disease state management, and institutional pharmacy systems and practice.

\*PHARM 5312 and 5313 Experiential Learning 5 and 6 (2 cr. total)

You will participate in field-based experiences where you will observe and participate in institutional practice activities, such as drug distribution and preparation, evaluating and monitoring patient-specific therapies, pharmacy systems, quality assessment, and formulary control.

PHARM 5314 Immunology (3 cr.),

PHARM 5315 Oncology/Hematology (3 cr.), and

PHARM 5316 Pulmonology/Rheumatology (2 cr.)

In these three courses students demonstrate and apply concepts of pathophysiology, medicinal chemistry, pharmacology, and therapeutics in the evaluation and treatment of selected diseases of the immune system, various types of cancer and diseases of the blood, and selected pulmonary and rheumatic diseases. Students develop the ability to design, monitor, and refine safe and cost-effective treatment plans and provide appropriate information to patients, caregivers, and health professionals in PHARM 5314, 5315, and 5316.

PHARM 5318 Endocrinology (3 cr.)

Students will study selected disorders of the endocrine system and apply differing concepts to their evaluation and treatment.

PHARM 5319 Neurology/Psychiatry (4 cr.)

You will evaluate and treat selected neurological and psychiatric disorders using differing concepts.

PHARM 5321 Advanced Pharmaceutical Care 2 (2 cr.)

Continuation of PHARM 5225

**PROFESSIONAL YEAR 4**

To comply with standards established by the Accreditation Council for Pharmacy Education, all students must register for at least 36 weeks of experiential learning in the P4 year. This will require payment of additional tuition and fees.

PHARM 5400 PharmD Seminar (1 cr.)

Students demonstrate effective communication and organizational skills by preparing, delivering, and evaluating professional seminars.

\*PHARM 5401 – 5407 – Advanced Pharmacy Practice Experience 1-7 (35 cr.)

PHARM 5410 – Advanced Pharmacy Practice Skills Enhancement (1cr.)

Students obtain skills required to successfully complete Advanced Pharmacy Practice Experiences. Modules will include Red Cross and Basic Life Support certification, active learning exercises with patients and preceptors, and review of objectives, goals, and protocols associated with each type of rotation.

\* Please note that these courses require that you complete experiential rotations at facilities external to the University, and such facilities will or may require a criminal background check, a child abuse history clearance, a drug screen, and other criteria as outlined on the Experiential Learning Web page. If you are unable to satisfy these requirements, the University may be unable to place you in a rotation setting and as a result you may be unable to complete the graduation requirements of the pharmacy program and obtain professional licensure.

**For more information about the pharmacy program, please contact:**

University of Pittsburgh  
School of Pharmacy  
1104 Salk Hall  
Pittsburgh, PA 15261  
412-383-9000  
E-mail: [rxschool@pitt.edu](mailto:rxschool@pitt.edu)  
[www.pharmacy.pitt.edu](http://www.pharmacy.pitt.edu)

**For more information about other majors, please contact:**

University of Pittsburgh  
Office of Admissions and Financial Aid  
Alumni Hall, 4227 Fifth Avenue  
Pittsburgh, PA 15260-6601  
412-624-7488  
E-mail: [oafa@pitt.edu](mailto:oafa@pitt.edu)  
[www.oafa.pitt.edu](http://www.oafa.pitt.edu)

## Special Programs and Opportunities

### Student Organizations

Student organizations can be a valuable part of your academic life at Pitt. They provide you with opportunities to meet and socialize with students who share your interests and goals. You also can network with professionals and Pitt alumni through student organizations.

**RxPREP** is dedicated to supporting pre-professional students through academic, social, and community activities designed to increase knowledge about a career within the pharmaceutical sciences. It provides members with resources within the profession including professional pharmacy students and faculty mentoring pre-pharmacy/undecided students and academic skills improvement through instructional activities. RxPREP also provides members with a broadened view of the profession through monthly meetings with featured themes and speakers and electronic resources highlighting links to areas of interest in pharmacy. RxPREP enables members to make educated decisions about their career paths. For more information, e-mail [sorc+rxprep@pitt.edu](mailto:sorc+rxprep@pitt.edu).

**Student National Pharmaceutical Association (SNPhA)** is an educational service association of student who are concerned about pharmacy and health care related issues, the welfare of this nation's underserved populations, and the poor minority representation in pharmacy and other health-related professions. The purpose of SNPhA is to plan, organize, coordinate and execute programs geared toward the improvement for the health, educational, and social environment of the community. SNPhA membership is also open to prepharmacy students.

Some organizations of special interest to pharmacy students are:

The **Academy of Managed Care Pharmacists (AMCP)** is the national professional society dedicated to the concept and practice of pharmaceutical care in managed healthcare environments. The student chapter provides programming related to issues facing pharmacists practicing in managed care organizations.

The **Academy of Students of Pharmacy (ASP)** works with the American Pharmaceutical Association-Academy of Students of Pharmacy (APhA-ASP), the student government of the School of Pharmacy, and one of the three branches of the American Pharmaceutical Association, for the overall advancement of the profession. ASP provides input in governmental representations as well as current issues facing pharmacy. Its mission is to serve as the student government and coordinator of student activities.

**Kappa Psi Pharmaceutical Fraternity Inc.** is a national coed fraternity based on principles of industry, sobriety, fellowship, and high ideals. This group takes pride in promoting its brotherhood and profession by participating in social, volunteer, professional, and athletic activities.

**Lambda Kappa Sigma** is the only pharmaceutical fraternity dedicated to the promotion of women in pharmacy. Sisters are dedicated to developing professionalism, academic integrity, and social and cultural interaction.

**Phi Delta Chi** offers an all-male brotherhood with a focus on the profession of pharmacy and service to others. Brothers pride themselves on academic excellence, professional development, community service, and fraternal bonds.

**Phi Lambda Sigma** is an honorary organization that recognizes leaders in pharmacy school.

**Rho Chi Society** is a national pharmacy honor society devoted to the advancement of the pharmaceutical sciences. To be chosen, initiates must display academic excellence, a capacity for achievement in the pharmacy profession, and strength of character, personality, and leadership.

### External Organizations

**Allegheny County Pharmaceutical Association** is a division of the Pennsylvania Pharmaceutical Association, and helps pharmacists and pharmacy students keep up with current pharmacy issues in Pennsylvania with an emphasis on political involvement.

**The Pennsylvania Pharmacists Association** is a professional membership society of registered pharmacists, student pharmacists, pharmacy technicians, and others who reside, work, attend college, or are interested in pharmacy in Pennsylvania. Our members comprise all pharmacy practice settings including academia, clinical, hospital, government, community pharmacy owner or employee, long term care, mail order, managed care, and the pharmaceutical industry.

**Western Pennsylvania Society of Hospital Pharmacists** represents the interests of hospital pharmacists in addition to holding meetings and events throughout the year that promote this area of pharmacy.

### Volunteer Service

Volunteering gives you valuable experience that enhances your learning, personal development, and the process of discovering your interests. The Student Volunteer Outreach center coordinates a variety of volunteer opportunities with more than 100 local community agencies and annual programs such as the mentoring and tutoring programs, Junior Achievement, Alternative Spring Break, annual volunteer agency fair, and Scouting for Food.