

The pharmacist is a professional specialist in the science of drugs who possesses comprehensive knowledge of all medications. Some areas of knowledge are (a) chemical and physical properties of drugs, (b) the composition, manufacture and uses of pharmaceuticals, and (c) the effect of drugs on the normal and the sick body. Job duties of a pharmacist include (1) educating patients about prescription and over-the-counter medications, (2) advising other health care professionals on drug decisions for patients, (3) providing expertise about the composition of drugs, including chemical, biological, and physical properties, as well as usage, (4) ensuring drug purity and strength, and (5) ensuring drugs do not interact in a harmful way.

Although the role of the pharmacist has traditionally been linked to the dispensing of prescriptions, increased technology and improved health care delivery has opened up new careers in addition to retail pharmacy for the licensed pharmacist. Mirroring trends in other health sciences, curricula in pharmacy schools have moved from an emphasis on drug information to a more holistic approach that emphasizes the application of this knowledge to the care of patients. Other pharmacy careers that are open to the licensed pharmacist include academic pharmacy, consulting pharmacy, government agencies, hospice and home care, hospital and institutional practice, long-term care, managed care pharmacy, medical and scientific publishing, pharmaceutical industry, trade and professional associations, uniformed (Public Health) service.

Pharmacy Education

The minimum educational requirement for licensure as a pharmacist is a Pharm. D. degree from an accredited school of pharmacy. This is typically a 3 or 4 year program. To take the state licensing exam one must complete the minimum educational requirements.

Types of Programs

The Pharm.D. program requires a minimum of two years pre-professional study plus three to four years of professional study and includes training in different settings of pharmacy. A Pharm.D is necessary for administrative work, research, and college teaching.

A. Pharm.D. Programs:

1. There are currently eleven pharmacy schools in California. Students may enter the program with or without a baccalaureate degree provided that they have completed the minimum units of course work required at an undergraduate institution before beginning the pharmacy program (However, statistics show a significantly higher percentage of acceptance for students with baccalaureate degrees).

2. Some out-of-state Pharm.D. programs require a B.S. in pharmacy for entry. Please see the school's Web site for further information.

B. M.S. and Ph.D. Programs:

These advanced degree programs requires an undergraduate degree prior to admission but the degree need not be in pharmacy. These graduate degrees are research degrees and do not qualify the student to be a licensed pharmacy practitioner unless the student possesses a B.S. in pharmacy or a Pharm. D. degree as well.

C. Joint Degree Programs:

3. Some pharmacy schools offer joint degree programs to allow pharmacy students to expand their knowledge in management, research, law, or public health while pursuing their Pharm.D. degree. Examples of the joint degree programs are Pharm.D./Ph.D., Pharm.D./M.S., Pharm.D./M.B.A., Pharm.D./J.D., Pharm.D./M.S.G., and Pharm.D./Gerontology Certificate. Please see the Pharmacy School List Handout and check out the school Web sites for available programs provided by each school.

Basic Requirements for All Pharmacy Schools

One Year of General Chemistry w/lab	CHEM 2 – General Chemistry I (includes lab) and CHEM 10 – General Chemistry II (includes lab)
One Year of Organic Chemistry	CHEM 8/L – Principles of Organic Chemistry with lab and CHEM 100 – Organic Synthesis and Mechanism with CHEM 100L – Organic Chemistry Lab
One Year of Biology with lab	BIO 1/L – Contemporary Biology and BIO 2/L – Introduction to Molecular Biology
One Year of Physics	PHYS 8 – Principles of Physics I or ICP 1B – Integrated Calculus and Physics: Physics or PHYS 18 – Principles of Physics I for Biological Sciences and PHYS 9 – Introductory Physics II or PHYS 19 – Introductory Physics II for Biological Sciences
One Year of Calculus	MATH 21 – Calculus I for Physical Sciences and Engineering and MATH 22 – Calculus II Physical Sciences and Engineering or MATH 11 – Calculus I for Biological Sciences and MATH 12 – Calculus II for Biological Sciences

Additional Required Courses

Upper Division Biological Science	BIO 101 – Biochemistry I BIO 120 & 120L – General Microbiology BIO 161 – Human Physiology BIO 164 – Human Anatomy
One Year of English	WRI 10 – College Reading and Composition and WRI 100 – Advanced Writing or WRI 116 – Science Writing in Natural Sciences

One Semester of Anthropology, Psychology or Sociology	ANTH 1 – Introduction to Sociocultural Anthropology or PSY 1 – Introduction to Psychology or SOC 1 – Introduction to Sociology
One Semester of Economics	ECON 1 – Introduction to Economics
One Semester of Public Speaking	No course available at UC Merced (see the Health Professions Advisor for assistance)

Course requirements vary from school to school. You should refer to the individual school catalogs and/or Web sites for specific information. Each individual school of pharmacy has its own specific requirements and deadlines which are subject to change from year to year. It is the applicant's responsibility to determine the requirements of the school(s) of his/her choice and to fulfill these requirements before the projected date of entrance. Check school's Web site for applications and deadlines. It is imperative that you apply in a timely manner. If a student applies to more than one pharmacy school with different application deadlines, he/she must arrange to complete the application and send the transcripts by the earliest deadline established by the selected pharmacy institutions.

Work Experience

Although not specifically required, It is strongly recommended that the pharmacy school applicant have some exposure to the field of pharmacy, especially when the school asks for a recommendation letter from a pharmacist. This exposure is important because it ensures that the individual is aware of what the pharmacy profession entails. Students are encouraged to gain pharmacy experience as early as their freshman/sophomore years. Activities on and off campus are also strongly recommended. The Career Services Center on the 1st floor of the Kolligan Library can assist with placements in local pharmacies and hospitals, and pre-pharmacy students can find volunteer or paid work in the community and/or with a practicing pharmacist on his/her own.

PharmCAS

PharmCAS is a centralized application process that allows students to apply for multiple pharmacy schools with a single application, although not all pharmacy schools participate in PharmCAS. If the schools you are applying to participate in PharmCAS you will send all of your undergraduate schools' transcripts there as well as your letters of reference (depending on the pharmacy school's instructions). For more information be sure to visit the PharmCAS Web site.

Pharmacy College Admission Test (PCAT)

The PCAT is designed to measure general academic ability and scientific knowledge. The examination includes verbal and quantitative ability, biology, chemistry and reading comprehension. California schools do not require the PCAT, but just over half of the out-of-state pharmacy schools do. PCAT information is available online at <http://www.pearsonassessments.com/haiweb/Cultures/en-US/site/Community/PostSecondary/Products/pcat/pcathome.htm>.

If you are planning to apply to a PharmCAS school, please send the PCAT score to code 104. Note that not all pharmacy schools require PCAT, and not all schools participate in PharmCAS. If you apply to pharmacy schools that do not participate in PharmCAS, send the PACT scores directly to each institution.

Letters of Reference

Most pharmacy schools require that the applicant send 2 or 3 letters of recommendation. It is advisable that one letter be from a pharmacist, preferably one with whom you have worked. The others should be from science professors and/or former employers.

Schools in California

California Health Sciences University College of Pharmacy

California Northstate College of Pharmacy

Chapman University - School of Pharmacy

Keck Graduate Institute - School of Pharmacy

Loma Linda University – School of Pharmacy

Touro University – College of Pharmacy

UC San Diego – Skaggs School of Pharmaceutical Sciences

UC San Francisco – School of Pharmacy

University of the Pacific – Thomas J. Long School of Pharmacy and Health Sciences

USC – School of Pharmacy

Western University of Health Sciences – College of Pharmacy