IVC
Irvine Valley College

Transfer Center

Pre-Pharmacy
Academic & Career Information

NATURE OF THE WORK, EARNINGS AND OCCUPATIONAL OUTLOOK

The American Association of Colleges of Pharmacy (AACP) reports the principal goal of pharmaceutical care is "to achieve positive outcomes from the use of medication which improves patients' quality of life. These outcomes include: cure of a disease, elimination or reduction of symptoms, arresting or slowing a disease process, prevention of disease, diagnosis of disease, and desired alterations in physiological processes, all with minimum risk to patients." As a result of society's changing health and social issues, pharmacists today do much more than simply compound and dispense medication. Their roles have broadened to include direct patient care, education, and case management duties. Pharmacists can be found in a variety of settings including community and consultant pharmacies, hospitals and institutions, managed care organizations, the pharmaceutical industry, academics and research, government agencies and many more. The most common setting is community pharmacies, which include independent, prescription only pharmacies, such as those found in medical office buildings, and chain pharmacies (local drug stores), which generate income from the sale of other merchandise. Opportunities are becoming increasingly available for pharmacists with advanced training to work as clinical pharmacists in recognized pharmacy practitioner specialties such as ambulatory care, clinical pharmacokinetics, geriatrics, oncology, psychopharmacology, drug information, and nutrition support. The advanced training for such programs usually requires a fellowship or residency after the Pharm.D.

According to the Occupational Outlook Handbook, the number of pharmacist jobs in 2020 was 322,200 with a decreasing demand of -2% (decline) in jobs from 2020-2030. Despite declining employment, about 11,300 openings for pharmacists are projected each year, on average, over the next 10 years. The median annual of wage-and-salary pharmacists in May 2017 was $128,710. The top 10% earned more than $164,980. Salaries vary by work setting and geographic location (Occupational Outlook Handbook, 2020).

PRE-PHARMACY PREPARATION

The majority of students who enter a pharmacy program have completed a minimum of three years of pre- pharmacy courses or a bachelor's degree. Coursework completed includes calculus, inorganic chemistry, organic chemistry, biology, physics, and additional courses in the humanities and social sciences. Many programs outside of California require applicants to take the **Pharmacy College Admissions Test (PCAT)**. This test is offered during select times of the year. More information on the PCAT can be found at: http://www.mometrix.com/academy/pcat-test/. Most California Pharm.D. Program currently requires the PCAT (AACP, 2020). Programs select applicants based on a variety of characteristics, including academic background, clinical experience, personal statement, interview, letters of recommendation and personal qualities including motivation, communication, critical thinking skills, and empathy. Most schools expect applicants to gain first-hand paid or volunteer experience in a pharmacy setting to confirm their interest in the pharmacy profession. Communication and interpersonal skills are important to demonstrate as pharmacists are involved in educating patients. Some schools set minimum prerequisites and cumulative GPA requirements; in fall 2020, the mean GPAs varied from 3.0 to 3.50.

MAJOR

No particular major is required or preferred for pharmacy school admissions, thus students are advised to select a major they find interesting and in which they can excel. Students should also consider a major that may lead them to an alternate career, should they decide not to pursue the field of pharmacy. Whichever major a student declares, their course of study must incorporate the required pre-pharmacy requirements. Many students who select a science major find a great deal of overlap between their major requirements and those required for pharmacy school. Regardless of the choice in major, pharmacy schools prefer that students have a well-rounded liberal arts education.

APPLICATION:

PharmCAS is a centralized web-based application service for applicants to pharmacy colleges and schools allowing applicants to submit one application and apply to multiple first-year professional pharmacy degree programs. Applicants to programs that do not participate in PharmCAS should apply directly to each institution using the traditional application process. All of the California pharmacy programs participate in the PharmCAS application service. For more information and a list of schools participating, please visit the PharmCAS web site at www.pharmcas.org. *For more information about Pharmacy, visit www.aacp.org.*

COURSE REQUIREMENTS FOR CALIFORNIA PHARMACY SCHOOL

Below is a list of requirements for the 8 Pharmacy programs in California. For further information on these programs or programs outside of California, consult the Pharmacy School Admissions Requirements book, available at www.aacp.org.

The information above is reprinted with permission from CSULB's Health Professions Advising Office: http://web.csulb.edu/colleges/cnsm/sas/hpao/planning.html

This is NOT a comprehensive list of prerequisites for all programs. Students maintain responsibility for verifying course* selection *with individual programs, especially for the Biology requirements.

California Northstate University - College of Pharmacy:

https://pharmacy.cnsu.edu/admissions/

California Northstate University	IVC Courses
Two courses of General Chemistry with lab	CHEM 1A & CHEM 1B
Two courses of Organic Chemistry with lab	CHEM 12A & CHEM 12B
Two courses of General Biology with lab	BIO 5 and BIO 16 or BIO 80/80H and BIO 81/81H
One courses of Human Physiology	BIO 12 (Note: BIO 11 is required to take BIO 12)
One course of Calculus	MATH 3A/3AH or MATH 3B/3BH
Two courses of English Composition	WR 1/1H and WR 2/2H
One course in Public Speaking or Oral Communication	COMM 1/1H
Psychology course (preferred) (other courses in humanities, social, or behavioral sciences will be accepted)	PSYC 1/1H
Economics course (preferred) (other courses in humanities, social, or behavioral sciences will be accepted)	ECON 1/1H or ECON 2/2H

Chapman University – School of Pharmacy

https://www.chapman.edu/pharmacy/academic-programs/pharmd/index.aspx

Chapman University	IVC Courses
One course of General Biology with lab	BIO 5, BIO 16, BIO 80/80H
One course of General Biology, Biochem, Human Genetics, or Molecular Biology	BIO 81 or CHEM 4 or BIO 16 or BIO 83
One course of Physiology with lab	BIO 12
One course of Microbiology	BIO 15
Two courses of General Chemistry with labs	CHEM 1A & CHEM 1B
Two courses of Organic Chemistry with labs	CHEM 12A & CHEM 12B
One course of Physics with lab	PHYS 2A or PHYS 4A
One course Human Anatomy with lab	BIO 11
One course of Statistics	MATH 10 or ECON 10/10H or MGT 10/10H or PSYC 10/10H

Physics courses (recommended)	PHYS 2A & PHYS 2B or PHYS 4A & PHYS 4B
One course in Psychology or Sociology (recommended)	PSYC 1/1H or SOC 1/1H
One course in Microeconomics (recommended)	ECON 1/1H
Two elective courses	Check schedule of classes

Loma Linda University – School of Pharmacy

https://pharmacy.llu.edu/admissions/requirements

Loma Linda Prerequisites	IVC Courses
Two-semester sequence of General Chemistry with lab	CHEM 1A & CHEM 1B
Two-semester sequence of Organic Chemistry with lab	CHEM 12A & CHEM 12B
Two semesters of General Biology with lab	BIO 5 and BIO 16 or BIO 80/80H and BIO 81/81H
General Physics I (Mechanics, Newtonian Physics)	PHYS 2A or PHYS 4A
Molecular Biology or Cell Biology	BIO 16

Touro University (CA) – College of Pharmacy

https://tu.edu/programs/pharmacy/admissions/

The following prerequisites are for applicants with a Bachelor's Degree:

Touro University Prerequisites	IVC Courses
8 semester units of General Chemistry with lab	CHEM 1A & CHEM 1B
8 semester units of Organic Chemistry with lab	CHEM 12A & CHEM 12B
3 semester units of Human Physiology	BIO 12
4 semester units of Microbiology with lab	BIO 15
3 semester units of Calculus	MATH 3A/3AH or MATH 3B/3BH
3 semester units of Biochemistry	BIO 10

UC San Diego - Skaggs School of Pharmacy and Pharmaceutical Sciences

https://pharmacy.ucsd.edu/admissions/admissions-requirements

The following prerequisites are for applicants with a Bachelor's Degree (required) :

UC, San Diego Prerequisites	IVC Courses
Two semesters of Biology (at least 1 lab)	Option 1: BIO 5, BIO 16, and BIO 83 (recommended) Option 2: BIO 81/81H, BIO 80/80H, and BIO 83
Two semesters of General Chemistry with lab	CHEM 1A & CHEM 1B
Two semesters of Organic Chemistry with lab	CHEM 12A & CHEM 12B
Two semesters of Calculus	MATH 3A/3AH and MATH 3B/3BH
Two semesters of General Physics (at least 1 lab)	PHYS 2A & PHYS 2B or PHYS 4A & PHYS 4B
Two semesters of English with writing	WR 1/1H and WR 2/2H
One semester of Public Speaking	COMM 1/1H or COMM 3
One semester of Economics (Micro or Macro)	ECON 1/1H or ECON 2/2H
One semester of Human Behavior	ANTH 2/2H or PSYC 1/1H or SOC 1/1H

Upper division courses in Biochemistry, Physiology, and Cellular and Molecular Biology are strongly recommended.

University of Southern California - Pharmacy School

https://pharmacyschool.usc.edu/apply/admission/requirements/

The following prerequisites are for applicants with a Bachelor's Degree (required):

University of Southern California Prerequisites	IVC Courses
Two semesters of General Chemistry with lab	CHEM 1A & CHEM 1B
Two semesters of Organic Chemistry with lab*	CHEM 12A & CHEM 12B
Two semesters of General Biology with lab	BIO 5 and BIO 16 (or) BIO 80/80H and BIO 81/81H
One upper division course in Biochemistry*	No upper division course equivalent at IVC
One semester of Human Physiology*	BIO 12
One semester of Microbiology*	BIO 15
One semester of Calculus	MATH 3A/3AH or MATH 3B/3BH
One upper division course in Molecular Biology (recommended)	No upper division course equivalent at IVC
Physics courses (recommended)	PHYS 2A & PHYS 2B or PHYS 4A & PHYS 4B
One course Statistics	MATH 10 or ECON 10/10H or MGT 10/10H or PSYC 10/10H
One course in Psychology or Sociology (recommended)	PSYC 1/1H or SOC 1/1H
One course in Microeconomics (recommended)	ECON 1/1H

** Courses must be completed within the past 9 years. It is recommended that these courses be taken at a four-year college/university.*

UC San Francisco - School of Pharmacy

http://pharmd.ucsf.edu/admissions/reqs/academic

The following prerequisites are for applicants with a Bachelor's Degree

UC, San Francisco Prerequisites	IVC Courses
Two semesters of General Chemistry sequence with lab	CHEM 1A & CHEM 1B
Two semesters of Organic Chemistry sequence with lab	CHEM 12A & CHEM 12B
Two semesters of General Biology (at least 1 lab)	BIO 5, BIO 16 and BIO 83 or BIO 80/80H, BIO 81/81H and BIO 83
One semester of Mammalian Physiology	BIO 12
One semester of Microbiology (at least 1 lab)	BIO 15
One semester of Calculus	MATH 3A/3AH or MATH 3B/3BH
One course Statistics	MATH 10 or ECON 10/10H or MGT 10/10H or PSYC 10/10H
Two semesters of English	WR 1/1H and WR 2/2H
One semester of Economics	ECON 1/1H or ECON 2/2H or ECON 20
One semester of Public Speaking	COMM 1/1H or COMM 3
One intro course in Psychology, Sociology, or Cultural Anthropology	PSYC 1/1H or SOC 1/1H or ANTH 2/2H
Additional courses in the Humanities and/or Social Sciences (10 semester units total) to meet elective unit requirements of 19 semester units (or 28 quarter units total).	Check schedule of classes

Also see Technical Standards: http://pharmd.ucsf.edu/admissions/reqs/technical and Computer Literacy requirements: http://it.ucsf.edu/students/reqs#literacy.

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

https://pharmacy.pacific.edu/pharmacy/pharmd/prerequisites

University of Pacific	IVC Courses
One year of General Chemistry with lab	CHEM 1A & CHEM 1B
One year of Organic Chemistry with lab*	CHEM 12A & CHEM 12B
One course in Calculus	MATH 3A/3AH or MATH 11
One course in General Physics with lab	PHYS 2A or PHYS 4A
One year of General Biology with lab*	BIO 5 and BIO 16 or BIO 80/80H and BIO 81/81H
One course in Physiology with lab	BIO 12
One course in Microbiology	BIO 15
One year of English	WR 1/1H and WR 2/2H
One semester of Public Speaking	COMM 1/1H or COMM 3 (note: Online COMM courses are not accepted)
One semester in Economics	ECON 2/2H or ECON 20 (with Bachelor's can take ECON 1/1H)
One course in Psychology	PSYC 1/1H or PSYC 37/37H

**Students who have not completed US Bachelor's Degree by the time of admissions will be required to take additional courses. Please see the University of Pacific's website for details.*

Western University of Health Sciences – College of Pharmacy

http://prospective.westernu.edu/pharmacy-pharmd/requirements-13/

Western University of the Health Sciences	IVC Courses
One semester of General Biology optional lab	BIO 5, BIO 16, BIO 80/80H or BIO 81/81H
Two semesters of General Chemistry with lab	CHEM 1A & CHEM 1B
Two semesters of Organic Chemistry with lab	CHEM 12A & CHEM 12B
One semester of Biochemistry, Molecular or Cell Biology	CHEM 4 or BIO 16 or BIO 83
One semester of Microbiology	BIO 15
One sequence of Human Anatomy and Physiology	BIO 11 & BIO 12
One semester of Calculus	MATH 3A/3AH or MATH 3B/3BH or MATH 11
Two semesters of English	WR 1/1H and WR 2/2H
One course in Psychology	PSYC 1/1H
One semester of Public Speaking	COMM 1/1H
One course of Macro or Micro Economics	ECON 1/1H or ECON 2/2H

Note: It is preferred to have all sciences courses completed within 10 years.