

## Pharmacy

Health Professions Advising Office (HPAO), Student Access to Science Center, FO5-109

Phone: (562) 985-5720 Website: [www.sascenter.org/hpao](http://www.sascenter.org/hpao)

### Nature of the Work, Earnings and Occupational Outlook

Pharmacists are health professionals who are concerned with serving the pharmaceutical needs of patients and communities. The American Association of Colleges of Pharmacy 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. degree.

The Occupational Outlook Handbook (2008-2009) reports that employment of pharmacists is expected to grow faster than the average for all occupations through the year 2010 due to the increased pharmaceutical needs of a larger and older population and greater use of medications. The median annual of wage-and-salary pharmacists in May 2006 were \$94,520. The middle 50% earned between \$83,180 and \$108,140 a year. Salaries vary by work setting and geographic location.

### Education – Doctor of Pharmacy Degree

Currently there are 101 accredited pharmacy programs offering the Doctor of Pharmacy (Pharm.D.) professional degree. The Pharm.D. is a four-year program that produces a scientifically and technically competent pharmacist that can use their knowledge to provide maximum health care services to patients. Pharmacy students gain experience in patient-centered learning experiences and in working in close, cooperative relationships with health practitioners. After completing a Pharm. D. degree, graduates have the option to pursue residency training in institutional and community pharmacy practice.

### Pharmacy College Application Service (PharmCAS)

Pharmacy College Application Service (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. Currently, 59 programs participate in PharmCAS. Applicants to programs that do not participate in PharmCAS should apply directly to each institution using the traditional application process. All of the CA 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.pharmacas.org](http://www.pharmacas.org).

### Pre-Pharmacy Preparation (College)

Requirements for admission to colleges of pharmacy vary. The vast majority of students who enter a pharmacy program have completed a minimum of three years of pre-pharmacy courses or a bachelor’s degree. Common coursework completed includes calculus, inorganic chemistry, organic chemistry, biology, physics, and additional courses in the humanities and social sciences. Approximately 75% of students admitted to Pharm.D. programs in CA have completed four or more years of university work. Many programs outside of California require applicants to take the *Pharmacy College Admissions Test (PCAT) offered four times a year in January, June, August and October*. None of the 8 California Pharm.D. programs currently require the PCAT. 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. Some schools set minimum prerequisite and cumulative GPA requirements that vary between 2.4 and 3.0. Most schools expect applicants to gain first-hand paid or volunteer experience in a pharmacy setting to confirm their interest in the pharmacy profession. As pharmacists become more involved in educating patients, communication and interpersonal skills are increasingly important to demonstrate.

Listed on the next page are the courses that students typically take to fulfill admissions requirements for each California school. For further information on these programs or Pharmacy programs outside of California, consult the Pharmacy School Admissions Requirements book, available at [www.aacp.org](http://www.aacp.org). Students are encouraged to visit a health professions advisor at the Jensen SAS Center located the FO5 building- room 109 to discuss pharmacy career options and planning.

Below is a list of requirements for the 8 Pharmacy programs in California. Students maintain responsibility for verifying course selection with individual Pharmacy programs.

**UNIVERSITY OF CALIFORNIA, SAN DIEGO** (articulation agreement 08/09)

Minimum GPA

Science Courses

1 year of General Chemistry w/ lab Chem 111A & 111B  
 1 year of Organic Chemistry w/ lab Chem 320A & 320B **OR**  
 Chem 322A w/ 323A & Chem 322B w/ 323B  
 1 year of Calculus Math 122 & 123 **OR** 119A & 119B  
 1 year Physics w/lab Physics 100A & 100B **OR** 151 & 152  
 1 year of General Biology w/ lab Bio 111 w/ 111L, Bio 212 w/ 212L, Bio 213 w/213L

Non-Science Courses

1 year English Engl 100 or Asam 100 or Chls 104 or Afrs 100 & Engl 101 or 102 or 184 or 300  
 Public Speaking Comm 130  
 Economics Econ 100 **OR** 101  
 1 Elective course Psy 100 **OR** Soc 100 **OR** Anth 120

**UNIVERSITY OF CALIFORNIA, SAN FRANCISCO** (articulation agreement 08-09)

Minimum Cumulative GPA 2.8 (avg. GPA- 3.6; avg. Pre-Pharm. GPA 3.5)

Science Courses

1 year of General Chemistry w/ lab Chem 111A & 111B  
 1 year of Organic Chemistry w/ lab Chem 320A & 320B **OR**  
 Chem 322A w/ 323A & Chem 322B w/ 323B  
 1 year of Calculus Math 122 & 123 **OR** 119A & 119B  
 1 year of Physics w/ lab Phys 100A & 100B **OR** 151 & 152  
 1 year of General Biology (w/ 1 lab) Bio 111 & Bio 212 & 213 (w/ 111L or 212L or 213L)  
 1 course of Mammalian Physiology Biology 207 **OR** 342

Non-Science Courses

1 year of English Engl 100 or Asam 100 or Chls 104 or Afrs 100 & Engl 101 or 102 or 184 or 300  
 Public Speaking Comm 130  
 Economics Econ 100 **OR** 101  
 1 Elective course Psy 100 **OR** Soc 100 **OR** Anth 120

**CALIFORNIA NORTHSTATE COLLEGE OF PHARMACY** (accreditation: pre-candidate status)

Minimum Cumulative GPA 2.8

Science Courses

1 year of General Chemistry w/ lab Chem 111A & 111B  
 1 year of Organic Chemistry w/ lab Chem 320A & 320B **OR**  
 Chem 322A w/ 323A & Chem 322B w/ 323B  
 1 course of Biochemistry or Cell & Molec. Chem 441A **OR** 448 **OR** Bio 340  
 1 year of General Biology w/ lab Bio 111 w/ 111L, Bio 212 w/ 212L, Bio 213 w/ 213L  
 1 course of Microbiology Micro 200 **OR** 211  
 1 course of Physics Phys 100A **OR** 151  
 1 course of Physiology Bio 207 **OR** 342  
 1 course of Calculus Math 119A **OR** 122

Non-Science courses

Public Speaking Comm 130  
 Economics Econ 100 **OR** 101  
 Psychology Psy 100

**LOMA LINDA UNIVERSITY** (no articulation agreement- check with school for final approval of classes)

Science Courses

1 year of General Chemistry w/ lab Chem 111A & 111B  
 1 year of Organic Chemistry w/ lab Chem 320A & 320B **OR**  
 Chem 322A w/ 323A & Chem 322B w/ 323B  
 1 course of Biochemistry Chem 441A **OR** 448  
 1 year of General Biology w/ lab Bio 111 w/ 111L, Bio 212 w/ 212L, Bio 213 w/213L  
 1 course of Microbiology Micro 200 **OR** 211  
 1 course of Physics Phys 100A & 100B **OR** 151 & 152  
 1 course of Anatomy Bio 208  
 1 course of Calculus (4units) Math 119A & 119B **OR** 122

Non-Science courses

Public Speaking Comm 130  
 Economics Econ 100 **OR** 101  
 Psychology Psy 100

**UNIVERSITY OF SOUTHERN CALIFORNIA** (articulation agreement 12/08)

Minimum GPA 3.0 (avg. GPA – 3.4)

Science Courses

1 year of General Chemistry w/ lab Chem 111A & 111B  
 1 year of Organic Chemistry w/ lab Chem 320A & 320B **OR**  
 Chem 322A w/ 323A & Chem 322B w/ 323B  
 1 course Biochemistry Chem 441A **OR** 448  
 1 course of Calculus Math 122 **OR** 119A **OR** 119B  
 1 course of Statistics Bio 260 **OR** Math 108 **OR** Psy 210  
 1 year of Physics w/ lab Phys 100A & 100B **OR** 151 & 152  
 1 year of General Biology w/ lab Bio 111 w/ 111L, Bio 212 w/ 212L, Bio 213 w/ 213L  
 1 course of Molecular Biology Biol 340 **OR** 370  
 1 course of Physiology Biol 342 w/ 342L **OR** 345 w/ 345L or 207  
 1 course of Microbiology Micr 200 **OR** 211

Non-Science Courses

1 year of English Engl 100 or Asam 100 or Chls 104 or Afrs 100 & Engl 101 or 102 or 184 or 300  
 Psych **OR** Soc Psy 100 **OR** Soc 100  
 Communication Comm 110 **OR** 130  
 Economics Econ 101

**UNIVERSITY OF THE PACIFIC** (articulation agreement 08-09)

Science Courses

1 year of General Chemistry w/ lab Chem 111A & 111B  
 1 year of Organic Chemistry w/ lab Chem 320A & 320B **OR**  
 Chem 322A w/ 323A & Chem 322B w/ 323B  
 1 course of Calculus Math 115 **OR** 119A **OR** 122  
 1 course Physics w/lab Physics 100A **OR** 151  
 1 year of General Biology w/ lab Bio 111 w/ 111L, Bio 212 w/ 212L  
 1 course of Microbiology Micr 200 **OR** 211

Non-Science Courses

1 year English Engl 100 or Asam 100 or Chls 104 or Afrs 100 & 101, 102, 184, 300, 310, 317, 410/510, 411/511, 419, 488, 491 (Select any two)  
 Public Speaking Comm 130 **OR** 335  
 Economics Econ 100 **OR** 300  
 Psychology Psy 100 **OR** 370

**TOURO UNIVERSITY**

Minimum cumulative and science GPA 2.75

**Science Courses**

1 year of General Chemistry w/ lab	Chem 111A & 111B
1 year of Organic Chemistry w/ lab	Chem 320A & 320B <b>OR</b> Chem 322A w/ 323A & Chem 322B w/ 323B
1 year of Calculus	Math 119A <b>OR</b> 122
1 course Human Anatomy w/lab	Biology 208
1 course Human Physiology w/lab	Biology 207 <b>OR</b> 342 w/ 342L

**WESTERN UNIVERISTY OF THE HEALTH SCIENCES****Science Courses**

1 year of General Chemistry w/ lab	Chem111A & 111B
1 year of Organic Chemistry w/ lab	Chem 320A & 320B <b>OR</b> Chem 322A w/ 323A & Chem 322B w/ 323B
1 course of Biochemistry	Chem 441A & 441B <b>OR</b> 441A & 447, <b>OR</b> 448 & Bio 340
1 course of Microbiology	Micro 200 <b>OR</b> 211 <b>OR</b> 320
1 course of Anatomy	Bio 208
1 course of Calculus	Math 115 <b>OR</b> 119A <b>OR</b> 119B <b>OR</b> 122 <b>OR</b> 123
1 course Human Physiology w/lab	Biology 207 <b>OR</b> 342 w/ 342L

**Non-Science Courses**

1 year English	Engl 100, 101, 102, 184, 205, 206, 300, 317, 320
Psychology	Psy 100
Public Speaking	Comm 130
Economics	Econ 100 <b>OR</b> 101