

# Pacific Union College

## Pre-Pharmacy for Admission to Loma Linda University

### General Areas of Service:

Pharmacists dispense and provide advice regarding the use of prescription medications. Specialized training regarding the actions, side-effects, and costs of pharmaceuticals makes the pharmacist an important member of the overall health-care team, working closely with physicians, nurses, and other health professionals.

The educating role of pharmacists is critical as they are often the last to give professional medical advice before the patient begins treatment. In addition, the pharmacist is often the most accessible of the health-care team and therefore is often the first to whom a patient will turn with medical questions.

Pharmacists serve in a wide variety of contexts including community pharmacies, hospitals, nursing homes, the pharmaceutical industry, and ranging to the fields of public health, insurance, and law.

Students considering pharmacy should have a desire to help others. In this context they will need to develop conscientious attention to detail and strong scientific and communication skills.

### Professional Training:

To obtain a license to practice pharmacy, one must complete a four-year post-college program culminating in the Doctor of Pharmacy (PharmD) degree and pass the California State Board Examination in Pharmacy (for California) and/or the North American Pharmacist Licensure Exam (all other states).

Prior to entering PharmD studies, the student must complete a pre-pharmacy (college-level) program with a minimum of ~109 quarter hours (2-3 years) in specified classes (see "Admission Requirements" below). Completion of a baccalaureate degree in chemistry, biology, physics, or related scientific field in is preferred.

### Job Outlook:

Employment in pharmacy is expected to grow at a faster rate compared to the average rate of job growth in all fields through 2014. Reasons for this strong growth include an increase in demand for pharmaceuticals and an increase in the average age of the population.

### Earnings:

In 2004, the median annual pharmacist's wage was \$84,900. 50% of pharmacists earned between \$75,720 and \$94,850. The lowest 10% earned less than \$61,000 and the highest 10% earned more than \$109,850.

#### Sources:

School of Pharmacy, Loma Linda University (<http://www.llu.edu/llu/sps/index.html>)  
Occupational Outlook Handbook (<http://www.bls.gov/>)

#### For more information:

American Association of Colleges of Pharmacy (<http://www.aacp.org>)  
American Pharmacists Association (<http://www.aphanet.org>)

PUC contact: Richard E. Clark, Pre-pharmacy advisor ([rclark@puc.edu](mailto:rclark@puc.edu), 707-965-7603)

LLU contact: School of Pharmacy Admissions ([admissions.sp@llu.edu](mailto:admissions.sp@llu.edu) , 909-558-1300 or 800- 422-4558)

**PUC Example Schedule**

**LLU Pharmacy Admission Requirements**

(see <http://www.llu.edu/llu/sps/admissions.html>)

**A. Preferred:** A baccalaureate degree in chemistry, biology, physics, or related scientific field, including the classes below

**B. Minimum:** Completion of at least ~109 quarter hours (2-3 years) of pre-pharmacy classes below

<b>Sciences:</b> 52 quarter hours	A W S
General chemistry/lab (CHEM 111, 112, 113	5-5-5)
Organic chemistry/lab (CHEM 371, 372, 373	4-4-4)
Biochemistry (CHEM 381	4)
General biology/lab (BIOL 111, 112, 113	5-5-5)
Anatomy (BIOL 101	5 )
General physics/lab (PHYS 111, 112, 113	4-4-4)

**Mathematics/Computer:**

Calculus (MATH 131, 132 5-5 )  
demonstrated proficiency in basic computer skills

**General Education\*:** 49 quarter hours

Communication – 11 qtr. hrs. in English composition and speech (ENGL 101, 102, COMM 105)

Humanities / fine arts – 18 quarter hours in at least two of the following areas: history, civilization, fine arts, literature, philosophy, religion, ethics, foreign language, cultural diversity, performing arts, or visual arts.

Social sciences / behavioral studies – 18 quarter hours, including one quarter each of economics (macro or micro) and general psychology. The remaining credits selected from: sociology, anthropology, political science, economics, psychology, geography, or cultural diversity.

**C. Recommended:** LLU strongly advises prospective students to obtain significant pharmacy work experience (Pharmacy Technician, Pharmacy Clerk, Pharmacy volunteer). The experience should be long enough to allow the supervising pharmacist to write a meaningful letter of recommendation.

\*Minimum requirements for early acceptance. Students completing general education requirements for a baccalaureate degree will have automatically met LLU general education requirements.

**Please note:** The final word on a suitable pre-requisite program belongs to the accepting institution. Students are advised to **contact LLU early** to double check the adequacy of prerequisite plans.

Students are advised to select a baccalaureate degree and work toward that degree while completing pre-pharmacy requirements. In the example schedule below, pharmacy prerequisites are covered in the first three years allowing for early application to LLU, if desired. The fourth year completes the requirements for a BS Chemistry (Biochemistry emphasis) degree.

The schedule shown is just one workable, illustrative example out of many possibilities. Alternatively, the pre-pharmacy prerequisites can be spread out over four years along with BS degree requirements, if desired. In either scenario, other class options, class order, and degrees can be chosen. Some classes (such as PHYS 111-112-113 or HIST 134-135) can be taken in the summer to spread out class loads.

	Autumn	Winter	Spring
Freshman	CHEM 111 (5) General Chemistry BIOL 101 (5) Anatomy ENGL 101 (4) College English ESAC 101A (1) Jogging MUEN 161 (1) Chorale Total: 16	CHEM 112 (5) General Chemistry MATH 131 (4) Calculus ENGL 102 (4) College English PSYC 126 (2) Assertive Behavior MUEN 161 (1) Chorale Total: 16	CHEM 113 (5) General Chemistry MATH 132 (4) Calculus COMM 105 (3) Speech Communication RELB 130 (3) Life & Teachings of Jesus ESAC 194 (1) Elementary Tennis Total: 16
Sophomore	CHEM 371 (4) Organic Chemistry BIOL 111 (5) Foundations of Biology SOC 121 (4) Intro to Sociology RELB 125 (3) The Books of Moses Total: 16	CHEM 372 (4) Organic Chemistry BIOL 112 (5) Foundations of Biology ECON 265 (4) Prin of Econ (Micro) HIST 134 (4) US History Total: 17	CHEM 373 (4) Organic Chemistry CHEM 373L (1) Adv Organic Chem Lab BIOL 113 (5) Foundations of Biology HIST 135 (4) US History RELB 270 (3) Acts of the Apostles Total: 17
=Junior	CHEM 381 (4) Biochemistry I PHYS 111 (4) General Physics BIOL 348* (5) Systems Physiology ECON 261 (4) Prin of Econ (Macro) Total: 17	BIOL 320 (3) Cell & Molecular Bio PHYS 112 (4) General Physics BIOL 366 (5) Medical Microbiology STAT 222 (4) Intro to Statistics Total: 16	CHEM 482 (4) Biochemistry II CHEM 482L (1) Biochemistry II Lab CHEM 396 (0.5) Seminar PHYS 113 (4) General Physics BIOL 469* (4) Immunology PSYC 121 (4) General Psychology Total: 17.5
LLU Pre-Pharmacy requirements complete at this point			
Senior	CHEM 451 (3) Physical Chemistry CHEM 324 (3) Analytical Chemistry I CHEM 396 (0.5) Seminar GNCI 345 (3) Environmental Science RELB 342 (3) Romans MUHL 105 (3) Survey of Music ESAC 176 (1) Elem Weight Train Total: 16.5	CHEM 452 (3) Physical Chemistry CHEM 480 (3) Information Metabolism CHEM 324L (2) Analytical Chem Lab I CHEM 396 (0.5) Seminar RELT 320 (3) Philosophy of Religion RELB 310 (3) Prophets of Israel HLED 166 (2) Health Education Total: 16.5	CHEM 325/414 (3) Anal Chm II / Inorg Chm CHEM 451L (1) Physical Chemistry Lab CHEM 396 (0.5) Seminar ENGL 301 (4) Great Books ART 105 (4) History of Western Art RELB 371 (3) Studies in Revelation ESAC 178 (1) Canoeing Total: 16.5
BS Chem, (Biochem) requirements (60 hrs) complete at this point			

\*Recommended by LLU but not required