

### Biochemistry Major Requirements

A minimum of 104 hours (52 upper-division hours)

► **Required Core Courses (59 hours):**

CHEM 111+L	General Chemistry I+Lab	4+1
CHEM 112+L	General Chemistry II+Lab	4+1
CHEM 113+L	General Chemistry III+Lab	4+1
CHEM 324+L	Analytical Chemistry I+Lab	2+1
CHEM 326+L	Analytical Chemistry III+Lab	2+1
CHEM 371+L	Organic Chemistry I+Lab	3+1
CHEM 372+L	Organic Chemistry II+Lab	3+1
CHEM 373+L	Organic Chemistry III+Lab	3+1
CHEM 396	Science Seminar	.5
CHEM 397	Chemistry Seminar	.5
CHEM 450L	Physical Chemistry Lab	1
CHEM 451	Thermodynamics	3
CHEM 452	Kinetics	3
CHEM 481	Biochemistry I	4
CHEM 482+L	Biochemistry II+Lab	4+1
CHEM 483+L	Biochemistry III+Lab	3+2
CHEM 490+L	Senior Capstone+Lab	1+1

At least one of the following courses:

CHEM 225	Chemical Modeling (2)	2
CHEM 325	Analytical Chemistry II (2)	2

► **Required Core Electives (6 hours):**

At least 6 hours of additional upper-division CHEM courses 6

► **Required Cognate Courses (39 hours):**

BIOL 111+12+13	Biological Foundations I,II,III	5+5+5
MATH 131+132	Calculus I,II	4+4
PHYS 111+12+13	General Physics I,II,III	4+4+4

At least one of the following courses: 4

BIOL 320	Cell & Molecular Biology (4)	4
BIOL 354	Genetics (4)	4
BIOL 469	Immunology (4)	4

**Pre-medical and pre-dental students:**

Consult with your academic advisor for recommended cognates.

### Chemistry at PUC

The Pacific Union College Department of Chemistry serves students who have an interest in chemical sciences and those planning careers in various medical areas. Our current chemistry majors are planning to use their chemistry degree to enter graduate, medical, dental, pharmacy, optometry and MD/PhD programs. A large number of our majors are accepted to Loma Linda University medical and dental programs each year.

We foster good relationships with students and advisees. We are all actively involved in academic advising and special interest advising. In addition to advising chemistry majors, we advise pre-med, pre-dent, pre-pharmacy and pre-optometry majors. We hold at least one to two departmental dinners and pre-vespers each quarter, where students enjoy homemade meals and fellowship with their peers.

### PUC Campus Requirements

**Religion (9 hours)**

PUC is a Seventh-day Adventist Christian institution and religion coursework is a foundational part of the curriculum. ADT students must complete 3 religion courses at PUC as follows:

- RELG 105 Biblical Foundations (3 hours)  
*Note: Students who demonstrate biblical knowledge (by passing a waiver exam or presenting religion coursework from high school) may substitute an elective religion course in place of RELG 105.*
- One approved "Studying Scripture" course that explores and critically analyzes biblical texts and themes. (3 hours)
- One approved "Exploring SDA Life and Thought" course that explores and critically analyzes Seventh-day Adventist beliefs and values. (3 hours)

**Health & Fitness, Practical & Applied Arts (6 hours)**

PUC expects graduates to demonstrate the knowledge, skills, and inclination necessary to sustain a healthy, well-balanced life. Therefore all baccalaureate graduates must complete the following requirements. These courses may be taken at PUC or may be transferred.

- One theory course in the area of nutrition or health education. Minimum 2 quarter hours total.
- Two exercise science activity courses. One must include a significant aerobic activity component. Minimum 2 quarter hours total.
- Two practical and applied arts courses, each from a different area. Minimum 2 quarter hours total. Areas include:
  - A. Interpersonal Skills
  - B. Management of Information & Finance
  - C. Outdoor & Survival Skills
  - D. Visual and Performing Arts

*Please note:* It is challenging to complete a pre-medical or pre-dental program in conjunction with an ADT pathway. PUC faculty recommend that pre-medical and pre-dental students spend all 4 years at PUC in order to obtain a cohesive undergraduate program. For additional information, please see: [www.puc.edu/pre-dentistry](http://www.puc.edu/pre-dentistry) and [www.puc.edu/pre-medical](http://www.puc.edu/pre-medical).

### Graduation Requirements

- A total of 192 quarter hours
- A total of 60 UD quarter hours
- Minimum GPA of 2.0

#### Taken at Community College

- AS-T in Chemistry
- Lower-division GE requirements (met by the AS-T)

#### May be taken at Community College or at PUC

- Health requirement (1 course)
- Fitness requirement (2 courses)
- Practical & Applied Arts requirement (2 courses)

#### Taken at PUC

- All remaining requirements for the Biochemistry major
- Religion requirement (9 hours)
- GNST 401: Senior Assessment Seminar (0.2 quarter hours)
- Electives as needed for 192 hours/60 UD hours total

### How to Construct Your Own Program

1. Counsel with your advisor.
2. Consider your aptitudes, interests, and available courses.
3. Schedule major courses and cognates first.
4. Fill the rest of your schedule with G.E. requirements and electives.
5. Choose a variety of upper-division coursework (300-level and 400-level courses) to achieve 60 total units.

### About PUC

Pacific Union College is a fully accredited Christian liberal arts college located in California's Napa Valley. Affiliated with the Seventh-day Adventist Church, PUC offers a broad range of academic programs in a caring Christian environment. PUC is noted for excellence in education, incredible beauty, and student diversity.

#### PUC Enrollment

Enrollment Services  
 Phone: 1-800-862-7080  
 Email: enroll@puc.edu  
 Website: <http://www.puc.edu/admissions>

#### Chemistry Department

Phone: 707-965-7600  
 Website: [www.puc.edu/chemistry](http://www.puc.edu/chemistry)

### Sample Program

This program is designed for students who have completed an AS-T in Chemistry at a California Community College prior to transfer to PUC.

#### AS-T Chemistry Major Coursework

A minimum of 51 units of major coursework is completed as part of the AS-T in Chemistry. These transfer courses apply to meet the following major requirements at PUC.

- ~ General Chemistry Sequence (5, 5, 5)
- ~ Organic Chemistry Sequence (4, 4, 4)
- ~ Physics Sequence (4, 4, 4)
- ~ Single-Variable Calculus Sequence (4, 4)

A minimum grade of C- is required for any course that is applied to the major.

#### PUC Coursework

This sample curriculum is designed to show you how a two-year program may be constructed in order to complete the BS in Biochemistry at PUC. The order of the courses may vary, and your list of required courses may be adjusted depending on the transfer courses you completed for your AS-T degree. Your advisor will help you design a personalized program of studies.

Junior Year	F	W	S
General Biology	5	5	5
Analytical Chemistry I+Lab	3	-	-
Seminar	-	.5	.5
Chemical Modeling	-	-	2
Analytical Chemistry III+Lab	-	-	3
Upper-Division Electives	4	4	4
General Education/Electives	5	8	3
	17	17.5	17.5

Senior Year	F	W	S
Biochemistry	4	5	5
Thermodynamics	3	-	-
Physical Chemistry Lab	1	-	-
Capstone	-	2	-
Kinetics	-	3	-
Biology Cognate	-	-	4
Senior Assessment Seminar	-	-	.2
Chemistry Elective	-	3	3
Upper-Division Electives	3	3	2
General Education/Electives	6	5	3
	17	17	16.2