WHY MAJOR IN BIOCHEMISTRY?

Biochemistry is a diverse discipline and a bachelor's degree in it allows entry into fields such as biotechnology, cell biology, and the health professions. The Department of Biochemistry offers a B.S. or B.A. degree and students can choose one of three emphases - biology, chemistry, and medical sciences – to meet their academic and career goals.

The Department of Biochemistry consists of 12 Faculty and 20 Cooperating Faculty. It maintains prominent strength in three areas critical to UCR’s success:

- Faculty in Biochemistry have highly active research programs in basic biochemistry on subjects that cut across the disciplines of biomedical sciences, chemistry, plant sciences, molecular biology, and structural biology. [http://biochemistry.ucr.edu/faculty.html](http://biochemistry.ucr.edu/faculty.html)
- Large undergraduate program with over 800 majors that provide each student with an individual faculty advisor. Rigorous upper-division laboratory requirements and individual research opportunities are key factors for student success. Biochemistry undergraduate courses also contribute to other programs at UCR, notably the majors in Biological Sciences, Biology, and Engineering.
- Graduate program in Biochemistry and Molecular Biology with 34 Ph.D. and 47 M.S. candidates that is not only the principal source of graduate students for department faculty, but also provides excellent M.S. and Ph.D. students for faculty across the College of Natural and Agricultural Sciences, in Engineering, and in Biomedical Sciences. About one quarter of Biochemistry’s Ph.D. students conduct research in other departments.

### LIFE SCIENCES CORE REQUIREMENTS

**Must be Completed During Freshman & Sophomore Years**

- Cell and Molecular Biology
- Organismal Biology
- Evolution and Ecology
- General Chemistry with Labs
- General Physics with Labs
- Organic Chemistry with Labs
- Introduction to Statistics
- Elementary Biochemistry or General Biochemistry

### BIOCHEMISTRY UPPER DIVISION REQUIREMENTS

**Must be Completed During Junior & Senior Years**

- Genetics
- General Biochemistry
- Biochemical Lab and Introductory Biochemistry Lab
- Survey of Physical Chemistry and Topics in Physical Chemistry
- Two Biochemistry Upper Division Electives
- Remaining Upper Division Electives within the Emphasis

### CHEMISTRY EMPHASIS

**LOWER DIVISION REQUIREMENTS**

- Quantitative Analysis

**UPPER DIVISION REQUIREMENTS**

Choose two electives from:

- Instrumental Methods
- Inorganic Chemistry (A and B)
- Physical Chemistry: Introduction to Quantum Chemistry
- Physical Chemistry: Introduction to Statistical Mechanics and Kinetics

### BIOLOGY EMPHASIS

**UPPER DIVISION REQUIREMENTS**

Choose three electives from the following areas listed in the general catalog:

- Biochemistry
- Biology
- Botany and Plant Sciences
- Cell Biology & Neuroscience
- Entomology
- Environmental Toxicology
- Environmental Sciences
- Microbiology

### MEDICAL SCIENCES EMPHASIS

**LOWER DIVISION REQUIREMENTS**

- Introduction to Humanitarian and Health Care Service
- Internship in a Humanitarian or Healthcare Arena

**UPPER DIVISION REQUIREMENTS**

- Fundamentals of Cell Biology
- Topics in Human Biochemistry

HIGHLY RECOMMENDED

- Functional Anatomy of the Vertebrates
- Human Anatomy and Physiology

[http://biochemistry.ucr.edu](http://biochemistry.ucr.edu)