

BIOCHEMISTRY

Biochemistry Program Learning Outcomes (<https://catalog.csudh.edu/program-learning-outcomes/natural-behavioral-sciences/biochemistry-chemistry-program-learning-outcomes/>)

College of Natural and Behavioral Sciences
Department of Chemistry and Biochemistry
Bachelor of Science
Degree Roadmap

Faculty

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Staff

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Emeriti Faculty

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Department Mission Statement

The California State University Dominguez Hills (CSUDH) Chemistry and Biochemistry department provides world class academic excellence across the chemical society by engaging a diverse student body and faculty that will strive for the finest quality of service in a dynamic learning environment to provide cutting edge research and from the University community prepare the next generation of critical thinkers, scientists, and industry leaders.

Program Description

The Bachelor of Science in Biochemistry will prepare students for graduate work in chemistry or biochemistry; teaching chemistry in secondary schools; employment with industry or government; entry into professional schools such as medicine or dentistry; or entry into law school with a view toward specialization in patent or environmental law. The department is approved by the American Chemical Society (ACS), 1155 Sixteenth Street, N.W., Washington, DC, 20036.

Features

The department is housed in well-equipped offices and laboratories with state of the art instruments on the third floor of the Natural Sciences and Mathematics Building. The faculty consists of full-time members who represent all the major areas of chemistry. Students generally benefit from the smaller class sizes and the individualized attention, which is seldom available at large universities. Students are introduced to modern instrumental techniques and are given many opportunities for "hands-on" experience.

Academic Advising

Students who are majoring in biochemistry should be advised once each semester, prior to registration. Permanent records of advisement are kept in the department office.

Preparation

High school students should include two years of algebra, one year of geometry and a one-year course in chemistry in their high school preparation. A course in high school physics also is recommended. Students who enter without this preparation must expect to delay their graduation beyond the minimum time-period of four years.

Community college transfers should have completed one year of general chemistry, one year of calculus and one year of physics.

Career Possibilities

A Major in Biochemistry will prepare students for graduate work in chemistry or biochemistry; teaching chemistry in secondary schools; employment with industry or government; entry into professional schools such as medicine or dentistry; or entry into law school with a view toward specialization in patent or environmental law.

Students may prepare for a career in teaching science at the secondary level (junior high or high school) by completing an approved "Subject Matter Preparation Program." Completion of such a program is the first step in meeting the state requirements for a teaching credential. As the program requirements for the "Subject Matter Preparation Program" in science have changed recently, interested students should consult the departmentally designated advisor for current information.

Pre-Medical Professions Training in Biochemistry

Students who wish to apply to professional schools of medicine, dentistry, veterinary medicine, or other medical areas following graduation should consider completing the requirement for a B.S. degree in Biochemistry. In addition, students should complete the elective course that was not selected to fulfill the degree requirements.

The following courses are not usually required for admission to medical school, but it is recommended that students consider them when planning their academic program. Many former students have found them to be a valuable introduction to courses that must be taken in many professional programs.

- BIO 422 Histology (3)
- BIO 424 Histology Laboratory (1)
- BIO 453 Endocrinology (3)
- BIO 483 Human Physiology (3)

Student Organizations

Membership in the Science Society of CSU Dominguez Hills is open to all students. The Society encompasses all of the scientific disciplines and is also a Student Affiliate Chapter of the American Chemical Society. It was founded to serve the interests and concerns of science students and sponsors scientific, educational, professional and social activities. The American Chemical Society has commended the Science Society for the high quality of its activities and programs. Contact the Department of Chemistry for further information.

Graduation With Honors

An undergraduate student may be a candidate for graduation with Honors in Biochemistry provided he or she meets the following criteria:

1. A minimum of 36 units in residence at CSU Dominguez Hills;
2. A minimum grade point average of at least 3.5 in all courses used to satisfy the upper division requirements in the major.
3. Recommendation by the faculty in the department or program in which the honors are to be awarded.

Bachelor of Science in Biochemistry

Total Course Requirements for the Bachelor's Degree

See the "Requirements for the Bachelor's Degree (<https://catalog.csudh.edu/general-information/baccalaureate-degrees-undergraduate-studies/>)" in the University Catalog for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

Elective Requirements

Completion of elective courses (beyond the requirements listed below) to reach a total of a minimum of 120 or a maximum of 132 units.

General Education Requirements (49 units)

See the "General Education (<https://catalog.csudh.edu/general-information/double-counting-general-education-courses/general-education/>)" requirements in the University Catalog or the Class Schedule for the most current information on General Education requirements and course offerings.

Graduation Writing Assessment Requirement

See the "Graduation Writing Assessment Requirement (<https://catalog.csudh.edu/general-information/graduate-writing-examination/>)" in the University Catalog.

Minor Requirements

Single field major, no minor required.

Major Requirements (81 units)

The following courses, or their approved transfer equivalents, are required of all candidates for this degree. A grade of "C" or better must be achieved in all courses.

A. Lower Division Required Courses (42 units)

BIO 120 Principles of Biology I (3)
 BIO 121 Principles of Biology Lab I (1)
 BIO 122 Principles of Biology II (3)
 BIO 123 Principles of Biology II Lab (1)
 CHE 110 General Chemistry I (5)
 CHE 112 General Chemistry II (5)
 CHE 230 Quantitative Analysis (4)
 MAT 191 Calculus I (5)
 MAT 193 Calculus II (5)
 PHY 130 General Physics I (5)
 PHY 132 General Physics II (5)

B. Upper Division Required Courses (33 units)

CHE 310 Organic Chemistry I (4)
 CHE 311 Organic Chemistry Lab I (1)
 CHE 312 Organic Chemistry II (3)
 CHE 313 Organic Chemistry Laboratory II (2)
 CHE 320 Physical Chemistry I (5)
 CHE 322 Physical Chemistry II (3)

CHE 420 Advanced Applic for Chemistry (2)
 CHE 450 Biochemistry I (4)
 CHE 451 Biochemistry I Lab (1)
 CHE 452 Biochemistry II (4)
 CHE 453 Biochemistry II Lab (2)
 CHE 460 Chemical Literature (2)

C. Electives

Select six (6) units from the following:

BIO 314 Developmental Biology (3)
 BIO 315 Developmental Biology Lab (1)
 BIO 320 Cell Biology (3)
 BIO 340 Genetics (3)

CHE 450 Biochemistry I (4): Major students may substitute this course for General Education Area E. Please contact the University Advisement Center to request the course substitution.

BIO 340 Genetics (3): Major students may substitute this course for General Education Area F2. Please contact the University Advisement Center to request the course substitution.