

## Biochemistry

*College of Science, Engineering and Technology*

*Department of Chemistry & Geology*

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Chair: Brian L Groh

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Biochemistry is a discipline which encompasses both biology and chemistry. This rapidly expanding science focuses on the study of the molecular aspects of living organisms. The tools and concepts of biochemistry are important as a foundation for careers in many areas of research and in medicine. Students considering a BA or BS degree in biochemistry should consult the biochemistry advisor for specific information regarding the program. This major is appropriate for students in pre-professional programs such as pre-dental, pre-medical, and pre-pharmacy programs.

**Admission to Major.** Admission to a program is necessary before a student can enroll in 300- and 400-level courses. To be eligible for admission to the biochemistry program a student must have declared biochemistry as a first major, completed 32 credits, including BIOL 105 and BIOL 106 as well as CHEM 201 and CHEM 202 and achieved a minimum grade point average of 2.0. Students should also have an assigned biochemistry advisor with whom they have discussed the program. Applications for admission to the biochemistry program are available in the department office.

### BIOCHEMISTRY BA

#### Required for Major (Support Courses, 20 credits):

BIOL 105	General Biology I (4)
BIOL 106	General Biology II (4)
BIOL 211	Genetics (4)
BIOL 270	Microbiology (4)
BIOL 479	Molecular Biology (4)

#### Required for Major (Core, 35 credits):

CHEM 201	General Chemistry I (5)
CHEM 202	General Chemistry II (5)
CHEM 305	Analytical Chemistry (4)
CHEM 320	Organic Chemistry I (with lab) (5)
CHEM 321	Organic Chemistry II (3)
CHEM 331	Organic Chemistry II Lab (1)
CHEM 460	Biochemistry I (3)
CHEM 461	Biochemistry II (3)
CHEM 465	Biochemical Techniques I (1)
CHEM 466	Biochemical Techniques II (2)
CHEM 474	Chromatography (2)
CHEM 495	Senior Seminar (1)

#### Required Electives (9 credits):

Choose a minimum of 9 credits with approval from the advisor:

BIOL 300/400 Elective

#### Required for Bachelor of Arts (BA) degree ONLY:

Language (8)

**Required Minor: None.**

### BIOCHEMISTRY BS

#### Required Support Courses (Minimum 35-36 credits):

BIOL 105	General Biology I (4)
BIOL 106	General Biology II (4)
BIOL 211	Genetics (4)

BIOL 270	Microbiology (4)
BIOL 479	Molecular Biology (4)
PHYS 211	Principles of Physics I (4) <b>AND</b>
PHYS 212	Principles of Physics II (4) <b>OR</b>
PHYS 221	General Physics I (4) <b>AND</b>
PHYS 222	General Physics II (3)
PHYS 233	General Physics III Laboratory (1)

Choose a minimum of 7 credits from the following:

MATH 121	Calculus I (4)
MATH 122	Calculus II (4)
STAT 154	Elementary Statistics (3)

#### Required for Major (Core, 41 credits):

CHEM 201	General Chemistry I (5)
CHEM 202	General Chemistry II (5)
CHEM 305	Analytical Chemistry (4)
CHEM 320	Organic Chemistry I (with lab) (5)
CHEM 321	Organic Chemistry II (3)
CHEM 331	Organic Chemistry II Lab (1)
CHEM 440	Physical Chemistry I (3)
CHEM 450	Physical Chemistry Laboratory I (1)
CHEM 460	Biochemistry I (3)
CHEM 461	Biochemistry II (3)
CHEM 465	Biochemical Techniques I (1)
CHEM 466	Biochemical Techniques II (2)
CHEM 474	Chromatography (2)
CHEM 495	Senior Seminar (1)
CHEM 498	Undergraduate Research (2)

#### Required Electives (Chemistry or Biology, 8 credits):

Choose a minimum of 8 credits with approval from the advisor:

CHEM/BIOL 300/400 Elective

**Required Minor: None.**

### POLICIES/INFORMATION

The first year of coursework for biochemistry majors should include two semesters of chemistry (CHEM 201, CHEM 202) and two semesters of biology (BIOL 105, BIOL 106). Organic Chemistry should be taken during the second year. It is important for majors to take the biochemistry sequence during the third year. Participation in chemistry seminar is required of all majors.

**GPA Policy.** Students obtaining a major in biochemistry must maintain an overall GPA of 2.2 in all courses required for their selected program with no more than 4 credits of "D" work in chemistry or biochemistry courses.

**P/N Grading Policy.** Courses leading to a major or minor in chemistry or biochemistry may not be taken on a P/N basis, except where P/N grading is mandatory.

The department is recognized by the American Chemical Society and offers a BS (Chemistry) major that is approved by that organization. The BS Biochemistry program follows the ASBMB recommended curriculum for a biochemistry and molecular biology undergraduate major. Anyone considering a biochemistry major should choose a biochemist as an advisor and consult that advisor often throughout the course of study.