

## Biochemistry

Emms (BIOL), Boyd (CHEM), chairs; Advisory committee: Marsh (CHEM), Olson (CHEM) committee chair, Sherer (BIOL), Verhoeven (BIOL)

Biochemistry is an interdisciplinary major that draws upon faculty and courses in the departments of Biology and Chemistry. The major is administered by a committee of representatives from both departments and is designed to meet the needs of students interested in gaining an understanding of the chemistry of life processes. Students who fulfill the requirements will receive a Bachelor of Science (B.S.) degree in Biochemistry. The program is appropriate for students pursuing graduate studies in biochemistry, medicine, or related fields. The major is also suitable for students interested in positions in biotechnology after graduation.

Entering students interested in this major should inform Academic Counseling. Students are advised to begin their introductory biology and chemistry coursework in their freshman year. The biochemistry committee will coordinate advising. Students should talk with an adviser as soon as possible following their freshman year in order to select the elective courses that will be most appropriate to their interests. A research course in either biology or chemistry can be counted as one of the electives and is highly encouraged if the student will be seeking admission to a graduate program in biochemistry or molecular biology.

Students choosing this major may not take a second major or a minor in either Biology or Chemistry.

### Graduation with Honors in Biochemistry

Students graduating with a B.S. in Biochemistry may also qualify for honors. Students interested in this designation must consult with the chair of the Biochemistry Committee one year or more prior to graduation.

Requirements include:

- An overall minimum cumulative GPA of 3.25.
- A cumulative GPA of 3.50 in the courses in both biology and chemistry combined.
- Completion of four credits in research. This may consist of a 4-credit course or two 2-credit courses in either biology or chemistry.
- Preparation of a written thesis in the form of the primary literature.
- Successful defense of the thesis before an examining panel which includes the thesis director, a representative from each of the departments of biology and chemistry, a faculty member from outside the departments of chemistry and biology and a faculty member from another institution. The panel members should be selected in consultation with the thesis adviser.
- Presentation of the research at an off-campus meeting.

*Note:* All requirements should be completed by April 20 for a spring graduation, or by November 15 for a fall graduation.

### Major in Biochemistry (B.S.)

BIOL 201 Diversity and Adaptation  
 BIOL 202 Genetics and Population Biology  
 BIOL 204 Cellular and Molecular Biology

*Plus:*

CHEM 111 General Chemistry I  
*and*  
 CHEM 112 General Chemistry II  
*or*  
 CHEM 115 Accelerated General Chemistry

*Plus:*

CHEM 201 Organic Chemistry I  
 CHEM 202 Organic Chemistry II  
 CHEM 440 Biochemistry I  
 CHEM 442 Biochemistry II

*Plus one of:*

CHEM 331 Chemical Thermodynamics and Reaction Dynamics  
 CHEM 332 Quantum Chemistry and Molecular Spectroscopy

*Plus:*

Twelve additional credits numbered BIOL 295 or higher.

*Note:* Four credits must be at the 400-level, excluding Research. Four credits may be in Research at the 300-level.

Four additional credits in CHEM, selected in consultation with the adviser.

### Allied requirements

MATH 113 Calculus I (or equivalent)  
 MATH 114 Calculus II  
 PHYS 111 Introduction to Classical Physics I  
 PHYS 112 Introduction to Classical Physics II