Program Coordinator: S. Pickard

The B.S. in Biochemistry provides students with an opportunity to receive a thorough scientific training in the context of a Christian worldview. This program integrates a strong understanding of chemical and biological principles and quantitative problem solving with the development of hands-on research skills. Also, the Biochemistry program includes a strong oral and written communication component. Thus, our students receive an educational experience that goes beyond the specific skills they need to be a successful biochemist and helps them to develop into well-rounded individuals who are ready to take their place in society.

The Biochemistry program has four student learning outcomes;

- Graduates will be able to demonstrate proficiency in content knowledge, including chemistry problem solving techniques.
- Graduates will be able to demonstrate proficiency in traditional chemistry lab techniques.
- Graduates will be able to demonstrate proficiency in oral scientific communication.
- Graduates will be able to demonstrate proficiency in written scientific communication.

This major prepares a student for graduate work in Biochemistry as well as many areas of Chemistry or Biology. In addition, the minimum requirements of almost all medical, dental, veterinary, and pharmacy schools are met by a biochemistry major. It is valuable for those students who seek careers in the biotechnology industry, pharmaceutical industry, government, and science-based sales and marketing.

Due to the large number of courses that biochemistry shares in common with Biology and Chemistry, a student cannot simultaneously major in Biochemistry and major or minor in Biology, Chemistry, or Forensic Science.

Comprehensive Assessment
The Chemistry Capstone (CHEM 4930) and Comprehensive Assessment (CHEM 4990) are required for all Biochemistry majors. CHEM 4990 is an end of program exam which tests the student’s knowledge of chemistry in the areas of Organic, Analytical and Physical. CHEM 4930 is review course designed to prepare the student for the end of program exam, and there is a letter grade assigned for CHEM 4930. Both CHEM 4990 and 4930 are normally taken during the Fall or Spring semester leading up to the student’s graduation.

Core Curriculum Requirements
Biochemistry majors should fulfill specified categories of the King Core Curriculum by taking the courses indicated below. See the “The Core Curriculum” section of the catalog for additional details.
**Science**
CHEM 1110  
General Chemistry I ............................................................ 4 s.h.

**Quantitative Literacy**
MATH 2350  
Calculus I ............................................................................. 4 s.h.

**Biochemistry Major Requirements**
The technology requirement for a biochemistry major is the minimum required by the university: namely, a laptop computer with a minimum of Microsoft Office 2010 or later, wireless capability, and a webcam.

The following courses are required for all biochemistry majors:

- CHEM 1120  
  General Chemistry II ......................................................... 4 s.h.
- CHEM 2110, 2120  
  Organic Chemistry I & II ..................................................... 8 s.h.
- CHEM 3000  
  Analytical Chemistry I ....................................................... 4 s.h.
- CHEM 4000  
  Physical Chemistry I ......................................................... 5 s.h.
- CHEM 3200 or 4200  
  Analytical or Physical, Chemistry II ..................................... 4 s.h.
- BIOL 2110, 2120  
  General Biology I & II ......................................................... 8 s.h.
- BIOL 3150  
  Genetics .................................................................................. 4 s.h.
- BIOL 3170  
  Molecular Biology ................................................................. 4 s.h.
- BIOL 3300  
  Cell Biology ............................................................................. 4 s.h.
- BIOL 3700  
  Biochemistry ........................................................................... 4 s.h.
- BIOL 4670  
  Mammalian Toxicology ......................................................... 4 s.h.

**Choose from the following courses** ...................................................... 4 s.h.
- BIOL 3400  
  Microbiology and Bioinformatics (4 s.h.)
- BIOL 3600  
  Human and Mammalian Physiology (4 s.h.)

- PHYS 2210, 2220  
  General Physics I & II ............................................................ 8 s.h.
- MATH 2360  
  Calculus II .............................................................................. 4 s.h.
- IDST 4500  
  Interdepartmental Science and Mathematics Seminar ................. 2 s.h.
- CHEM 4930  
  Chemistry Capstone ................................................................ 1 s.h.
- CHEM 4990  
  Comprehensive Assessment ...................................................... 0 s.h.
Summary of Total Credits
Core Curriculum ................................................................. 42 s.h.
Major Requirements .......................................................... 72 s.h.
Minor/Electives ................................................................. 10 s.h.
Minimum to Earn Bachelor of Science .................................. 124 s.h.