The Bachelor of Science degree in Biochemistry is recommended for those students interested in integrating the subjects of biology and chemistry. The cross-disciplinary nature of the degree provides students with a good foundation for careers in research and development in the private sector and in academia. Many will continue their education in graduate schools or in health related fields such as medicine, dentistry, or pharmacy.

For further information, please see the Chemical Sciences (http://catalog.ysu.edu/undergraduate/colleges-programs/college-science-technology-engineering-mathematics/department-chemistry/#text) overview page.

The following BIOL core courses are required (14 s.h.):
- BIOL 2601 General Biology I: Molecules and Cells
- BIOL 2601L General Biology I: Molecules and Cells Laboratory
- BIOL 3702 Microbiology
- BIOL 3702L Microbiology Laboratory
- BIOL 3711 Cell Biology: Fine Structure
- BIOL 3721 Genetics

At least 3 s.h. in upper-level BIOL courses required from the list below; 5 s.h. recommended if needed to attain 120 s.h. required for graduation.

The following support courses are required (22 s.h.):
- MATH 1571 Calculus 1
- MATH 1572 Calculus 2
- STAT 3717 Statistical Methods
- PHYS 2610 General Physics 1
- PHYS 2610L General Physics Laboratory 1
- PHYS 2611 General Physics 2
- PHYS 2611L General Physics Laboratory 2

Total Semester Hours 120-122

Year 1

Fall S.H.
- YSU 1500 Success Seminar or SS 1500 or HONR 1500 Strong Start Success Seminar or Intro to Honors
- CHEM 1515 General Chemistry 1
- CHEM 1515L General Chemistry 1 Laboratory
- CHEM 1515R Recitation for General Chemistry 1
- CHEM 1516 General Chemistry 2
- CHEM 1516L General Chemistry 2 Laboratory
- CHEM 1516R Recitation for General Chemistry 2
- CHEM 2604 Quantitative Analysis & 2604L and Quantitative Analysis Laboratory
- CHEM 3719 Organic Chemistry 1
- CHEM 3719L Organic Chemistry 1 Laboratory
- CHEM 3719R Organic Chemistry Recitation 1
- CHEM 3720 Organic Chemistry 2
- CHEM 3720L Organic Chemistry 2 Laboratory
- CHEM 3720R Organic Chemistry Recitation 2
- CHEM 3739 Physical Chemistry 1
- CHEM 3739L Physical Chemistry 1 Laboratory
- CHEM 3785 Biochemistry 1
- CHEM 3785L Biochemistry Laboratory
- CHEM 3786 Biochemistry 2
- CHEM 4850 Chemistry Research
- CHEM 4851 Chemistry Research Project
- CHEM 5876 Enzyme Analysis

Spring
- CHEM 1516 General Chemistry 2
- CHEM 1516L General Chemistry 2 Laboratory
- CHEM 1516R Recitation for General Chemistry 2
- MATH 1572 Calculus 2

Semester Hours 13-15
Learning Outcomes

The undergraduate student learning outcomes for the major in biochemistry are as follows:

- Undergraduate students will demonstrate an understanding of the fundamentals of chemistry and biochemistry.
- Undergraduate students will demonstrate independent and critical thinking.
- Undergraduate students will demonstrate an understanding of the fundamentals of modern chemical instrumentation.
- Undergraduate students will be able to interpret experimental data.
- Undergraduate students will effectively communicate their ideas both orally and in writing.