Bachelor of Science in Biological Sciences

(330) 941-3601

Room 4037

Ward Beecher Science Hall

The Bachelor of Science degree is recommended for those who wish to pursue careers in the biological sciences, medicine, dentistry, or other related biotech fields. A minimum of 37 s.h. in Biological Sciences is required for the BS degree.

The BS degree in biological sciences requires a minimum of 37 semester hours from within the Department of Biological Sciences. (Courses at the 1000 level are not applicable to a Bachelor of Science degree.)

COURSE | TITLE | S.H.
--- | --- | ---
FIRST YEAR REQUIREMENT - STUDENT SUCCESS
YSU 1500 | Success Seminar | 1-2
or SS 1500 | Strong Start Success Seminar | 
or HONR 1500 | Intro to Honors |
General Education Requirements
ENGL 1550 | Writing 1 | 3-4
or ENGL 1549 | Writing 1 with Support |
ENGL 1551 | Writing 2 | 3
CMST 1545 | Communication Foundations | 3
Mathematics Requirement (met with MATH 1570 in the major)
Arts and Humanities (6 s.h.) | 6
Social Science (6 s.h.) | 6
Natural Sciences: (This requirement is satisfied by the major requirements below)
BIOL 2601 & 2601L | General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory | 
CHEM 1515 & 1515L | General Chemistry 1 and General Chemistry 1 Laboratory |
Social and Personal Awareness (6 s.h.) | 6
Required Biology Courses (37 s.h.)
BIOL 2601 & 2601L | General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory | 4
BIOL 2602 & 2602L | General Biology: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory | 4
BIOL 3721 | Genetics | 3
or BIOL 3759 | Evolution |
BIOL 4861 | Senior Biology Capstone Experience | 2
Electives in Biology
24 s.h. of BIOL courses at the 3000-5000 level. At least two of these courses must have a laboratory component, with at least one at the 4800-5800 level.
Required Support Courses
Mathematics - take one of the following courses (4 s.h.): | 4
MATH 1570 | Applied Calculus 1 |
MATH 1571 | Calculus 1 |
Statistics - take one of the following courses (3-4 s.h.): | 3-4
BIOL 5853 | Biometry |
STAT 3717 | Statistical Methods |
Physics - take one of the following sequences (9-10 s.h.): | 9-10
PHYS 1501 & 1501L | Fundamentals of Physics 1 and Fundamentals of Physics Laboratory 1 |
PHYS 1502 & 1502L | Fundamentals of Physics 2 and Fundamentals of Physics Laboratory 2 |
OR
PHYS 2610 & 2610L | General Physics 1 and General Physics Laboratory 1 |
PHYS 2611 & 2611L | General Physics 2 and General Physics Laboratory 2 |
Chemistry (16 s.h.):
CHEM 1515 & 1515L | General Chemistry 1 and General Chemistry 1 Laboratory |
CHEM 1516 & 1516L | General Chemistry 2 and General Chemistry 2 Laboratory |
CHEM 3719 & 3719L | Organic Chemistry 1 and Organic Chemistry 1 Laboratory |
CHEM 3720 & 3720L | Organic Chemistry 2 and Organic Chemistry 2 Laboratory |
Minor and Electives to reach 120 | 47
Total Semester Hours | 120-124

Enrollment in the recitation sections are recommended for PHYS 1501 and the above Chemistry courses. Recitation Chemistry courses may not count toward the Chemistry minor.

Year 1
Fall
YSU 1500 | Success Seminar | 1
BIOL 2601 & 2601L | General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory | 4
ENGL 1550 or ENGL 1549 | Writing 1 (electives may be substituted if excused based on results of Placement Test) or Writing 1 with Support | 3-4
CHEM 1515 & 1515L | General Chemistry 1 and General Chemistry 1 Laboratory | 4
GER AL/SS/SPA | 3
Semester Hours | 15-16
Spring
BIOL 2602 & 2602L | General Biology: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory | 4
ENGL 1551 | Writing 2 (electives may be substituted if excused based on results of Placement Test) or Writing 1 with Support | 3
CHEM 1516 & 1516L | General Chemistry 2 and General Chemistry 2 Laboratory | 4
GER Elective (CMST 1545) | 3
Semester Hours | 14

Year 2
Fall
General Elective | 3
Biology Elective | 4
MATH 1570 or MATH 1571 | Applied Calculus 1 or Calculus 1 | 4
BIOL 3721 or BIOL 3759 | Genetics (CT) or Evolution | 3
CHEM 3719 | Organic Chemistry 1 | 4
Semester Hours | 18
Spring
Biology Elective | 4
### Bachelor of Science in Biological Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>STAT 3717</td>
<td>Statistical Methods</td>
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<tr>
<td>or BIOL 5853</td>
<td>Biometry</td>
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<tr>
<td>CHEM 3720</td>
<td>Organic Chemistry 2</td>
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<td>GER elective (SI)</td>
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#### Year 3

**Fall**

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<td>PHYS 1501 &amp; 1501L</td>
<td>Fundamentals of Physics 1 and Fundamentals of Physics Laboratory 1</td>
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<td>GER Elective (PS)</td>
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**Spring**

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<tr>
<td>PHYS 1502 &amp; 1502L</td>
<td>Fundamentals of Physics 2 and Fundamentals of Physics Laboratory 2</td>
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#### Year 4

**Fall**

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<tr>
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**Spring**

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<td>BIOL 4861</td>
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<td>Semester Hours</td>
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**Total Semester Hours**

121-125

### Learning Outcomes

The student learning outcomes for the major in biological sciences are as follows:

- Students will be prepared for entry into professional health or research related schools, post-graduate (MS, PhD) programs, or the work place.
- Students will master the subjects found on standardized tests (molecular biology, physiology, immunology) required for entrance into professional schools (MCAT, GRE, etc.).
- Students will demonstrate an understanding of fundamental biological principles and their application.
- Students should be able to reason critically, both individually and in collaboration with other students.