

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

(330) 941-3608

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 YSU 1500S	Youngstown State University 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
Mathematics Requirement (Met with MATH 1570, 1571 or 1581 in the major)		
Arts and Humanities (Select 2 courses 6 s.h.)		
Social Science (Select 2 courses 6 s.h.)		
Natural Sciences: (This requirement is satisfied by the major requirements below)		
General Education Electives (9 s.h.)		
CMST 1545	Communication Foundations	3
2 Gen Ed Courses Met with Courses in Major (6 s.h.)		
Major Specific Courses		
BIOL 2601	General Biology 1: Molecules and Cells	3
BIOL 2601 & 2601L	General Biology 1: Molecules and Cells and General Biology I: Molecules and Cells Laboratory	4
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
BIOL 2601L	General Biology I: Molecules and Cells Laboratory	1
BIOL 2602	General Biology 2: Organisms and Ecology	3
BIOL 2602L	General Biology: Organisms and Ecology Laboratory	1
BIOL 3721 or BIOL 3759	Genetics Evolution	3
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.):		
MATH 1570	Applied Calculus 1	4
MATH 1571	Calculus 1	
MATH 1581	Calculus for the Health Sciences 1	
Statistics - take one of the following courses (3-4 s.h.):		
BIOL 5853	Biometry	3-4

STAT 3717	Statistical Methods	
Physics - take one of the following sequences (9-10 s.h.):		9-10
PHYS 1501	Fundamentals of Physics 1	
PHYS 1501L	Fundamentals of Physics Laboratory 1	
PHYS 1502	Fundamentals of Physics 2	
PHYS 1502L	Fundamentals of Physics Laboratory 2	
OR		
PHYS 2610	General Physics 1	
PHYS 2610L	General Physics Laboratory 1	
PHYS 2611	General Physics 2	
PHYS 2611L	General Physics laboratory 2	
Chemistry (16 s.h.):		
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
CHEM 1516	General Chemistry 2	3
CHEM 1516L	General Chemistry 2 Laboratory	1
CHEM 3719	Organic Chemistry 1	3
CHEM 3719L	Organic Chemistry 1 Laboratory	1
CHEM 3720	Organic Chemistry 2	3
CHEM 3720L	Organic Chemistry 2 Laboratory	1
Minor and Electives to reach 120 (Minor is required)		21
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		S.H.
YSU 1500	Success Seminar	1-2
or YSU 1500S	or Youngstown State University Success Seminar	
or HONR 1500	or Intro to Honors	
ENGL 1550	Writing 1 (electives may be substituted if excused based on results of Placement Test)	3-4
or ENGL 1549	or Writing 1 with Support	
BIOL 2601	General Biology 1: Molecules and Cells	3
BIOL 2601L	General Biology I: Molecules and Cells Laboratory	1
Gen Ed SS		
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
Semester Hours		15-17
Spring		
ENGL 1551	Writing 2 (electives may be substituted if excused based on results of Placement Test)	3
BIOL 2602	General Biology 2: Organisms and Ecology	3
BIOL 2602L	General Biology: Organisms and Ecology Laboratory	1
CHEM 1516	General Chemistry 2	3
CHEM 1516L	General Chemistry 2 Laboratory	1
CMST 1545		3
Semester Hours		14
Year 2		
Fall		
General Elective		3
Biology Elective		4

MATH 1570 or MATH 1571 or MATH 1581 or MATH 1581H	Applied Calculus 1 or Calculus 1 or Calculus for the Health Sciences 1 or Honors Calculus for the Health Sciences 1	4
BIOL 3721 or BIOL 3759	Genetics (CT) or Evolution	3
CHEM 3719	Organic Chemistry 1	3
CHEM 3719L	Organic Chemistry 1 Laboratory	1
Semester Hours		18
Spring		
Biology Elective		4
STAT 3717 or BIOL 5853	Statistical Methods or Biometry	3-4
Gen Ed SS		3
CHEM 3720	Organic Chemistry 2	3
CHEM 3720L	Organic Chemistry 2 Laboratory	1
Semester Hours		14-15
Year 3		
Fall		
BIOL 3700-5800 course		4
Gen Ed AH		3
PHYS 1501	Fundamentals of Physics 1	4
PHYS 1501L	Fundamentals of Physics Laboratory 1	1
Gen Ed AH		3
Semester Hours		15
Spring		
BIOL 3700-5800 course		4
Elective		3
PHYS 1502	Fundamentals of Physics 2	3
PHYS 1502L	Fundamentals of Physics Laboratory 2	1
Elective		3
Elective		3-4
Semester Hours		17-18
Year 4		
Fall		
BIOL 5800 course		4
General Electives		5
General Electives		6
Semester Hours		15
Spring		
BIOL 3700-5800 course		4
BIOL 4861	Senior Biology Capstone Experience	2
General Electives		6
Semester Hours		12
Total Semester Hours		120-124

- Students should be able to reason critically, both individually and in collaboration with other students.

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.