

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.
General Education Requirements		
Core Competencies		12
ENGL 1550	Writing 1	
ENGL 1551	Writing 2	
CMST 1545	Communication Foundations	
Mathematics Requirement		
Arts and Humanities		6
Natural Sciences		6
Social Science		6
Social and Personal Awareness		6
General Education Elective / First-Year Experience		3
Required Biology Courses (37 s.h.)		
BIOL 2601 & 2601L	General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory ¹	4
BIOL 2602 & 2602L	General Biology: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory ¹	4
BIOL 2603	Integrated Biology for BS/MD (BIOL 2603 satisfies the 2601/2602 requirement)	
BIOL 3721	Genetics	3
BIOL 4861	Senior Biology Capstone Experience	2
Core Courses		
One course must be taken from two of the following groups (7-9 s.h.):		7-9
Group A		
BIOL 3711	Cell Biology: Fine Structure	
BIOL 3702 & 3702L	Microbiology and Microbiology Laboratory	
Group B		
BIOL 3730 & 3730L	Human Physiology and Human Physiology Laboratory	
BIOL 3725	Mammalogy	
Group C		
BIOL 3740 & 3740L	Plant Diversity and Plant Diversity Laboratory	
BIOL 3759	Evolution	
Electives in Biology		
Select 15-17 semester hours of BIOL courses at the 3700-5000 level. At least two of these courses must have a laboratory component, with at least one at the 4800-5800 level.		15-17
Required Support Courses		

Mathematics - take one of the following courses (4 s.h.):		
MATH 1570	Applied Calculus 1	
MATH 1571	Calculus 1	
Statistics - take one of the following (3-4 s.h.):		
BIOL 5853	Biometry	3
STAT 3717	Statistical Methods	4
Physics - take one of the following sequences (9-10 s.h.):		
PHYS 1501 & 1501L	Fundamentals of Physics 1 and Fundamentals of Physics Laboratory 1	5
PHYS 1502 & 1502L	Fundamentals of Physics 2 and Fundamentals of Physics Laboratory 2	4
OR		
PHYS 2610 & 2610L	General Physics 1 and General Physics laboratory 1	5
PHYS 2611 & 2611L	General Physics 2 and General Physics laboratory 2	5
Chemistry (16 s.h.):		
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
CHEM 1516 & 1516L	General Chemistry 2 and General Chemistry 2 Laboratory	4
CHEM 3719 & 3719L	Organic Chemistry 1 and Organic Chemistry 1 Laboratory	4
CHEM 3720 & 3720L	Organic Chemistry 2 and Organic Chemistry 2 Laboratory	4

Enrollment in the recitation sections are recommended for PHYS 1501 and the above Chemistry courses.

Course	Title	S.H.
Year 1		
Fall		
BIOL 2601 & 2601L	General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory	4
CHEM 1515	General Chemistry 1	4
ENGL 1550	Writing 1 (electives may be substituted if excused based on results of Placement Test)	3
GER AL/SS/SPA		3
Semester Hours		14
Spring		
BIOL 2602 & 2602L	General Biology: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory	4
CHEM 1516	General Chemistry 2	4
ENGL 1551	Writing 2 (electives may be substituted if excused based on results of Placement Test)	3
GER Elective (COMM 1545 recommended)		3
Semester Hours		14
Year 2		
Fall		
Biology Core Courses (choose 1 of 3) ¹		4-5
MATH 1570 or MATH 1571	Applied Calculus 1 or Calculus 1	4
BIOL 3721	Genetics (CT)	3
CHEM 3719	Organic Chemistry 1	4
Semester Hours		15-16
Spring		
Biology Core Course: choose 1 of 3 ¹		4-5

STAT 3717 or BIOL 5853	Statistical Methods or Biometry	4
CHEM 3720	Organic Chemistry 2	4
GER elective (SI)		3
Semester Hours		15-16
Year 3		
Fall		
BIOL 3700-5800 course		4
PHYS 1501 & 1501L	Fundamentals of Physics 1 and Fundamentals of Physics Laboratory 1	5
GER electives (PS), (SI)		6
Semester Hours		15
Spring		
BIOL 3700-5800 course		4
PHYS 1502 & 1502L	Fundamentals of Physics 2 and Fundamentals of Physics Laboratory 2	4
GER Electives (AL), (PS)		6
Semester Hours		14
Year 4		
Fall		
BIOL 3700 course		4
BIOL 5800 course		4
GER elective (AL)		3
General Electives		6
Semester Hours		17
Spring		
BIOL 3700-5800 course		4
BIOL 4861	Senior Biology Capstone Experience	2
General Electives		4-10
Semester Hours		10-16
Total Semester Hours		114-122

- ¹ Core courses: One course must be taken from two of the following groups:
 Group A: BIOL 3711 Cell Biology: Fine Structure or
 BIOL 3702 Microbiology and BIOL 3702L Microbiology Laboratory
 Group B: BIOL 3730 Human Physiology and BIOL 3730L Human
 Physiology Laboratory or BIOL 3725 Mammalogy Group C: BIOL 3740
 Plant Diversity and BIOL 3740L Plant Diversity Laboratory or BIOL 3759
 Evolution

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.