

# BACHELOR OF ARTS IN BIOLOGICAL SCIENCES

The Bachelor of Arts is recommended only for those students who plan careers in business or secondary education careers related to the Biological Sciences. A minimum of 32 S.H. in Biological Sciences is required for the BA degree.

All biological sciences majors must take the courses as listed for the BA degree in the curriculum sheet.

The BA degree in biological sciences requires a minimum of 32 semester hours from within the Department of Biological Sciences. (Courses at the 1000 level are not applicable to a Bachelor of Arts degree.)

All biological sciences majors must take the following courses for the BA degree:

COURSE	TITLE	S.H.
<b>FIRST YEAR STUDENT EXPERIENCE</b>		
YSU 1500	Success Seminar	1-2
or YSU 1500S	Youngstown State University Success Seminar	
or HONR 1500	Intro to Honors	
<b>General Education Requirements</b>		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
Mathematics Requirement (met through MATH in major)		
Arts and Humanities (6 s.h.)		
Natural Sciences (2 courses, 1 with lab) (6-7 s.h.) <sup>Met through science courses in the major</sup>		
Social Science (6 s.h.)		
<b>General Education Electives (9 s.h.)</b>		
CMST 1545	Communication Foundations	3
Any 2 Gen Ed Courses (6 s.h.) Met with CHEM courses in major		
<b>Foreign Language Requirement</b>		
FNLG 1501	Conversational Foreign Language 1	3
FNLG 1502	Conversational Foreign Language 2	3
<b>Major Requirements</b>		
BIOL 2601 & 2601L	General Biology 1: Molecules and Cells and General Biology I: Molecules and Cells Laboratory <sup>1</sup>	4
BIOL 2602 & 2602L	General Biology 2: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory <sup>1</sup>	4
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
CHEM 1516 & 1516L	General Chemistry 2 and General Chemistry 2 Laboratory	4
Select one course from two of the following groups:		7-8
Group A		
BIOL 3702	Microbiology	
BIOL 3702L	Microbiology Laboratory	
BIOL 3711	Cell Biology: Fine Structure	
Group B		
BIOL 3725	Mammalogy	
BIOL 3730	Human Physiology	
Group C		
BIOL 3740	Plant Diversity	

BIOL 3741	Animal Diversity	
Select 16 semester hours of courses in the Department of Biological Sciences at the 3000-5000 level. At least two of these courses must have a laboratory component.		16
<b>Capstone Course</b>		
BIOL 4861	Senior Biology Capstone Experience	2
<b>Electives</b>		
Strongly recommended:		
CHEM 3719 & 3719L	Organic Chemistry 1 and Organic Chemistry 1 Laboratory	
CHEM 3720 & 3720L	Organic Chemistry 2 and Organic Chemistry 2 Laboratory	
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	
<b>Minor Requirement</b>		
Select courses counting toward minor		12-18
<b>Additional electives to meet 120</b>		<b>39</b>
<b>Total Semester Hours</b>		<b>128-137</b>

<sup>1</sup> The general biology courses are prerequisites for genetics and all core and upper-division courses.

Students seeking admission to medically related professional schools should complete the BS program.

The mathematics, physics and chemistry courses may not be taken under the credit/no credit option.

**Recommended core curriculum meeting science requirements of medically related and other professional schools.**

Year 1		S.H.
<b>Fall</b>		
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) or Writing 1 with Support	3-4
or ENGL 1549		
BIOL 2601	General Biology 1: Molecules and Cells	3
CHEM 1515R	Recitation for General Chemistry 1 (opt)	1
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
GER AL/SS/Elective		3
<b>Semester Hours</b>		<b>15-17</b>
<b>Spring</b>		
ENGL 1551	Writing 2 (electives may be substituted if excused based on results of Placement Test)	3
BIOL 2602 & 2602L	General Biology 2: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory	4
CHEM 1516R	Recitation for General Chemistry 2 (opt)	1
CHEM 1516 & 1516L	General Chemistry 2 and General Chemistry 2 Laboratory	4
GER elective (COMM 1545 recommended)		3
<b>Semester Hours</b>		<b>15</b>

**Year 2****Fall**

Biology Core Course		
Select one of the following:		3
BIOL 3730	Human Physiology	
BIOL 3711	Cell Biology: Fine Structure	
BIOL 3740	Plant Diversity	
MATH 1570 or MATH 1571	Applied Calculus 1 or Calculus 1	4
GER Elective (AL)		3
General Electives		3
Select an additional 3 s.h.		3
<b>Semester Hours</b>		<b>16</b>

**Spring**

Biology Core Course		
Select one of the following:		3-4
BIOL 3730	Human Physiology	
BIOL 3721	Genetics	
BIOL 3741	Animal Diversity	
GER Elective (SI)		3
FNLG 1501	Conversational Foreign Language 1	3
General Electives		6
<b>Semester Hours</b>		<b>15-16</b>

**Year 3****Fall**

BIOL 3700-5800 course w/ lab		4
GER electives (PS), (SI)		6
FNLG 1502	Conversational Foreign Language 2	3
General Elective		5
<b>Semester Hours</b>		<b>18</b>

**Spring**

BIOL 3700-5800 course w/ lab		4
BIOL 3700-5800 course		3
GER electives (AL), (PS)		6
General Elective		3
<b>Semester Hours</b>		<b>16</b>

**Year 4****Fall**

BIOL 3700 course		3
General Electives		9-12
<b>Semester Hours</b>		<b>12-15</b>

**Spring**

BIOL 3700-5800 course		4
BIOL 4861	Senior Biology Capstone Experience	2
General Electives		7-10
<b>Semester Hours</b>		<b>13-16</b>

<b>Total Semester Hours</b>	<b>120-129</b>
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- Students should be able to reason critically, both individually and in collaboration with other students.

## Learning Outcomes

The department's learning outcomes for the BA in biology are as follows:

- Students will be fluent in the terminology of the biological sciences.
- Students will be competitive for entry into the workplace.
- Students will be familiar with the scientific process and the process of hypothesis testing.