

# BIOLOGY, BACHELOR OF SCIENCE

To obtain a BS with a major in Biology, a student must fulfill university, college, and departmental requirements. Minimum hour requirements follow:

- 46 hours of University General Education courses—most commonly, Biology majors do not complete 46 hours of coursework exclusively to meet University General Education requirements, but may reduce this number, possibly to 30 hours or fewer, in following ways:
  - Test out of at least 3 hours of fundamental academic skills,
  - Complete 6 hours of coursework satisfying both the 6 hours of diversity requirements and 6 hours of distribution requirements,
  - Meet the 7-hour University General Education natural sciences distribution requirement through completing major courses.
- 12 hours college breadth requirement
- 51 hours of major courses
- Elective hours as required to total 120 hours

TOTAL HOURS: 120

## Requirements

A total of at least 36 Biology credits is required. At least 18 of those 36 credits must come from upper-division biology courses (3000-4000 level).

Code	Title	Credits
<b>Required Courses in Biology Core</b>		
BIOL 1450	BIOLOGY I	5
BIOL 1750	BIOLOGY II	5
BIOL 2140	GENETICS	4
BIOL 3020	MOLECULAR BIOLOGY OF THE CELL	3
BIOL 3340	ECOLOGY	4
<b>Advanced Themes in Biology</b>		
Select one course from Group I and at least three courses from Group II (see below) to obtain at least 12 credits of advanced study beyond the Biology Core. Two advanced courses must have approved laboratories.		12
<b>Cognate Requirements in Chemistry</b>		
Select one of the following required chemistry sequences:		14-16
Sequence 1:		
CHEM 1140 & CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY and FUNDAMENTALS OF COLLEGE CHEMISTRY LABORATORY	
CHEM 2210 & CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY	
CHEM 3650 & CHEM 3654	FUNDAMENTALS OF BIOCHEMISTRY and FUNDAMENTALS OF BIOCHEMISTRY LABORATORY	
Sequence 2:		
CHEM 1180 & CHEM 1184	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY	
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY	
CHEM 2250	ORGANIC CHEMISTRY I	

CHEM 2260	ORGANIC CHEMISTRY II
CHEM 2274	ORGANIC CHEMISTRY LABORATORY
Sequence 3:	
CHEM 1180 & CHEM 1184	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY
CHEM 2210 & CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY
CHEM 3650 & CHEM 3654	FUNDAMENTALS OF BIOCHEMISTRY and FUNDAMENTALS OF BIOCHEMISTRY LABORATORY

### Cognate Requirements in Physics

Select one of the following required physics sequences: 5-10

Sequence 1:	
PHYS 1050 & PHYS 1054	INTRODUCTION TO PHYSICS and INTRODUCTION TO PHYSICS LABORATORY
Sequence 2:	
PHYS 1110 & PHYS 1154	GENERAL PHYSICS I and GENERAL PHYSICS LABORATORY I
PHYS 1120 & PHYS 1164	GENERAL PHYSICS II and GENERAL PHYSICS LABORATORY II
Sequence 3:	
PHYS 2110 & PHYS 1154	GENERAL PHYSICS I - CALCULUS LEVEL and GENERAL PHYSICS LABORATORY I
PHYS 2120 & PHYS 1164	GENERAL PHYSICS-CALCULUS LEVEL and GENERAL PHYSICS LABORATORY II
<b>Math and Statistics</b>	
Two approved courses in math or computer science from the list of options: 6	
MATH 1220, MATH 1300 or MATH 1320, 1330, 1340, 1930, 1940, 1950; CSCI 1200, 1620; CIST 1400; BIOL 4110.	
BIOL 4110 may fulfill a math, statistics, or upper-level biology requirement, but may not fulfill more than one of these.	
One approved course in statistics from the following options: 3	
BIOL 4110, STAT 3000, PSYC 3130, SOC 2130	

**Total Credits 61-68**

### Group I

Code	Title	Credits
<b>Structure and Function of Multicellular Systems</b>		
BIOL 3240	INTRODUCTION TO IMMUNOLOGY	3
BIOL 4260	BEHAVIORAL ECOLOGY	3
BIOL/PSYC 4270	ANIMAL BEHAVIOR	3
BIOL/NEUR 4290	NEUROETHOLOGY	3
BIOL/PSYC 4320	HORMONES & BEHAVIOR	3
BIOL 4440	PLANT PHYSIOLOGY	4
BIOL 4710	TOXICOLOGY	3
BIOL 4730	VERTEBRATE ENDOCRINOLOGY	4
BIOL 4740	ANIMAL PHYSIOLOGY	3
BIOL 4830	DEVELOPMENTAL GENETICS	2
BIOL 4850	DEVELOPMENTAL BIOLOGY	3
BIOL/NEUR 4890	GENES, BRAIN, AND BEHAVIOR	3
BIOL 4970	ADVANCED BOTANY	4

**Group II**

Code	Title	Credits
<b>Cellular and Molecular Biology</b>		
BIOL 3830	BIOLOGY OF PATHOGENIC MICROORGANISMS	3
BIOL 4130	MOLECULAR GENETICS	4
BIOL 4140	CELLULAR BIOLOGY	4
BIOL 4150	CANCER BIOLOGY	3
BIOL 4450	VIROLOGY	3
BIOL 4454	VIROLOGY LABORATORY	1
BIOL 4640	MOLECULAR MICROBIOLOGY	3
BIOL 4644	MOLECULAR MICROBIOLOGY LAB	1
BIOL/CHEM 4650	BIOCHEMISTRY I	3
BIOL/CHEM 4654	BIOCHEMISTRY I LABORATORY	1
BIOL/CHEM 4660	BIOCHEMISTRY II	3
BIOL/CHEM 4664	BIOCHEMISTRY II LABORATORY	1
BIOL/NEUR 4810	BEHAVIORAL GENETICS	4
BIOL 4760	GENOME TECHNOLOGY AND ANALYSIS	3
BIOL 4860	COMPARATIVE GENOMICS	3
BIOL/NEUR 4870	MOLECULAR AND CELLULAR NEUROBIOLOGY	3
BIOL 4960	ADVANCED GENETICS	3
<b>Structure and Function of Multicellular Systems</b>		
BIOL 3240	INTRODUCTION TO IMMUNOLOGY	3
BIOL 4260	BEHAVIORAL ECOLOGY	3
BIOL/PSYC 4270	ANIMAL BEHAVIOR	3
BIOL/NEUR 4290	NEUROETHOLOGY	3
BIOL/PSYC 4280	ANIMAL BEHAVIOR LABORATORY	3
BIOL/PSYC 4320	HORMONES & BEHAVIOR	3
BIOL 4440	PLANT PHYSIOLOGY	4
BIOL 4460	COMPARATIVE IMMUNOLOGY	4
BIOL 4710	TOXICOLOGY	3
BIOL 4730	VERTEBRATE ENDOCRINOLOGY	4
BIOL 4740	ANIMAL PHYSIOLOGY	3
BIOL 4830	DEVELOPMENTAL GENETICS	2
BIOL 4850	DEVELOPMENTAL BIOLOGY	3
BIOL/NEUR 4890	GENES, BRAIN, AND BEHAVIOR	3
BIOL 4970	ADVANCED BOTANY	4
<b>Biodiversity</b>		
BIOL/GEOL 3100	INVERTEBRATE PALEONTOLOGY	3
BIOL/GEOL 3104	INVERTEBRATE PALEONTOLOGY LABORATORY	1
BIOL 3530	FLORA OF THE GREAT PLAINS	4
BIOL 3730	FAUNA OF THE GREAT PLAINS	3
BIOL 4490	MEDICINAL USES OF PLANTS	3
BIOL 4780	VERTEBRATE ZOOLOGY	4
BIOL 4790	MAMMALOLOGY	4
BIOL 4840	HERPETOLOGY	4
BIOL 4940	ENTOMOLOGY	4
BIOL 4980	ORNITHOLOGY	4
<b>Ecology Evolution and Conservation Biology</b>		
BIOL 3680	BIOLOGY OF AFRICA	3
BIOL 3690	BIOLOGY OF AFRICA LAB	1
BIOL/GEOL/GEOG 4100	BIOGEOGRAPHY	3
BIOL 4120	CONSERVATION BIOLOGY	3
BIOL 4180	FRESHWATER ECOLOGY	4

BIOL 4210	FIRE ECOLOGY	3
BIOL 4220	POPULATION BIOLOGY	4
BIOL 4230	EVOLUTION	3
BIOL 4240	MARINE BIOLOGY	3
BIOL 4250	FIELD MARINE BIOLOGY	1
BIOL/ENVN 4410	WETLAND ECOLOGY AND MANAGEMENT	3
BIOL 4420	RESTORATION ECOLOGY	3
BIOL 4540	PRINCIPLES OF SYSTEMATICS	3

**Freshman**

Fall		Credits
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1300	COLLEGE ALGEBRA WITH SUPPORT (or higher**)	4
BIOL 1450	BIOLOGY I (***)	5
Humanities & Fine Arts		3

\*ENGL 1150: requires placement via EPPE, ACT, or AP.

\*\*Students may take higher levels of Math, which will require placement. Consult your advisor for the best option.

\*\*\*BIOL 1450: counts as a Natural & Physical Science Lecture and Lab course as well as a major requirement.

**Credits 15**

**Spring**

ENGL 1160	ENGLISH COMPOSITION II (*)	3
CMST 1110	PUBLIC SPEAKING FUNDS	3
or CMST 2120	or ARGUMENTATION AND DEBATE	
BIOL 1750	BIOLOGY II	5
Second Math course (3 credits); Consult your advisor for the best options.**		3

\*ENGL 1160: requires ENGL 1150 with grade of C- or higher or placement via EPPE or AP.

\*\*Second Math course (3 credits); Consult your advisor for options.

**Credits 14**

**Sophomore****Fall**

Chemistry Supporting Course I (*)	4-5
Approved Statistics Course (**)	3
Humanities/Fine Arts	3
Humanities/Fine Arts (***)	3
Social Science + US Diversity Course	3

\*Chemistry Supporting Course options - Sequence I: CHEM 1140 & CHEM 1144. Sequence II and III: CHEM 1180 & CHEM 1184. Either option satisfies the 2nd Natural & Physical Science requirement for the University.

\*Please see the catalog for the most up-to-date chemistry prerequisite information.

\*\*Approved Statistics Courses: BIOL 4110, STAT 3000, PSYC 3130, SOC 2130. Requires placement. A minimum of 27 upper-level credits is required in the overall degree, with at least 18 upper-level credits within the major. Depending on options selected throughout degree, upper-level electives may be needed in order to reach this minimum credit requirement.

\*\*\*HFA must be in a second discipline.

**Credits 16-17**

**Spring**

Chemistry Supporting Course I (*)	4-5	
BIOL 2140	GENETICS (**)	4

Social Science	3
HIST 1000 or Minor/2nd Major Course (***)	3
*Chemistry Supporting Course options – Sequence I: CHEM 2210 & CHEM 2214. Sequence II and III: CHEM 1190 & CHEM 1194.	
**BIOL 2140: requires BIOL 1450 and 1750, as well as CHEM 1140 or 1180.	
***A&S College Requirement Options.	
<b>Credits</b>	<b>14-15</b>

**Junior****Fall**

Chemistry Supporting Course III (*)	3-5
BIOL 3020 MOLECULAR BIOLOGY OF THE CELL (**)	3
Social Science Course (***)	3
BIOL 3340 ECOLOGY (#)	4
*Chemistry Supporting Course options – Sequence I and III: CHEM 3650 & CHEM 3654. Sequence II: CHEM 2250.	
**BIOL 3020: requires BIOL 2140 and CHEM 1180 or 1190.	
***SS course must be in a 2nd discipline.	
# BIOL 3340: requires BIOL 1450 and 1750; junior-senior standing or graduate student.	
<b>Credits</b>	<b>13-15</b>

**Spring**

Chemistry Supporting Course IV (*) or Elective	3-5
Group II Course with Lab (**)	4
Additional Social Science for A&S or course towards Minor/2nd Major (***)	3
HIST 1010 or Minor/2nd Major Course (#)	3
*Chemistry Supporting Course options – Sequence I: No Course. Sequence II: CHEM 2260 & CHEM 2274. Sequence III: CHEM 3650 & CHEM 3654.	
**See Catalog or curriculum guide from Biology advisors for Group II course list.	
***A&S College Requirement Options. Additional SS must be in a 3rd discipline.	
#A&S College Requirement Options.	
<b>Credits</b>	<b>13-15</b>

**Senior****Fall**

Group I Course (*) w	3
Group II Course with Lab (*) w	4
Physics Course I + Lab (**)	5
Elective if needed to reach 120	3
*See Catalog or curriculum guide from Biology advisor for Group I and Group II course list.	
w: Meets Advanced Writing requirement: see curriculum guide from Biology advisor for list of writing-approved courses	
**Physics Course options – Sequence I: PHYS 1050 & PHYS 1054. Sequence II: PHYS 1110 & PHYS 1154.	
<b>Credits</b>	<b>15</b>

**Spring**

Group II Course (*)	3
Physics Course II + Lab (**)	0-5
Additional Humanities/Fine Arts for A&S or course towards Minor/2nd Major (***)	3
Elective if needed to reach 120 (#)	3
Elective if needed to reach 120 (#)	3
*See Catalog or curriculum guide from Biology advisors for Group II course list.	

\*\*Physics Course options – Sequence I: No course. Sequence II: PHYS 1120 and 1164.

\*\*\*A&S College Requirement Options. Additional HFA Must be in a 3rd discipline.

#A minimum of 27 upper-level credits is required in the overall degree, with at least 18 upper-level credits within the major. Depending on options selected throughout degree, upper-level electives may be needed in order to reach this minimum credit requirement.

**Credits****12-17****Total Credits****112-123**

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change.

**Additional Information About this Plan:**

**University Degree Requirements:** An undergraduate degree from UNO requires a minimum 120 credit hours, and completion of 30 credit hours per year, on average, is needed to finish in four years. Please review the requirements specific to your program.

**Placement Exams:** For Math, English, and Foreign Language, a placement exam may be required. More information on these exams can be found at <https://www.unomaha.edu/enrollment-management/testing-center/placement-exams/information.php>

**Please note:** \*\*Transfer credit or placement exam scores may change suggested plan of study

**GPA Requirements:** 2.0