

# BIOLOGY, BACHELOR OF SCIENCE WITH A CONCENTRATION IN EDUCATION

To obtain a BS with a major in Biology with a concentration in Education, a student must fulfill university, College of Arts & Sciences, College of Education, Health and Human Sciences, 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.
- 66 major hours
- Elective hours won't be needed. Total will be 132-133, more than the 120 credit minimum.

TOTAL CAS HOURS: 93-94

TOTAL CEHHS HOURS: 39

## Requirements

A Bachelor of Science in Biology with a Concentration in Education requires a minimum of 37 credits of coursework in Biology. At least 18 Biology credits must be at the 3000 or 4000 level.

A minimum of 42 credits in the College of Education, Health, and Human Sciences are required for the Concentration and state aligned certification requirements.

Code	Title	Credits
<b>Required Core Courses:</b>		
BIOL 1450	BIOLOGY I	5
BIOL 1750	BIOLOGY II	5
BIOL 2140	GENETICS	4
BIOL 2740	HUMAN ANATOMY AND PHYSIOLOGY I	4
BIOL 3020	MOLECULAR BIOLOGY OF THE CELL	3
BIOL 3240	INTRODUCTION TO IMMUNOLOGY	3
BIOL 3340	ECOLOGY	4
BIOL 3830	BIOLOGY OF PATHOGENIC MICROORGANISMS	3
BIOL 4230	EVOLUTION	3

Code	Title	Credits
<b>Advanced Themes in Biology</b>		

Students must take at least one course, together with the associated laboratory, from one of the following groups to obtain at least 3 credits of advanced study beyond the Biology Core:

<b>Group I</b>		
<b>Cellular and Molecular Biology</b>		
BIOL 4130	MOLECULAR GENETICS	4
BIOL 4140	CELLULAR BIOLOGY	4

BIOL 4450 & BIOL 4454	VIROLOGY and VIROLOGY LABORATORY	4
BIOL 4640 & BIOL 4644	MOLECULAR MICROBIOLOGY and MOLECULAR MICROBIOLOGY LAB	4
BIOL/CHEM 4650	BIOCHEMISTRY I (with the following lab)	3
BIOL/CHEM 4654	BIOCHEMISTRY I LABORATORY	1
BIOL/CHEM 4660	BIOCHEMISTRY II (with the following lab)	3
BIOL/CHEM 4664	BIOCHEMISTRY II LABORATORY	1
BIOL 4810	BEHAVIORAL GENETICS	4

<b>Group II</b>		
<b>Structure and Function of Multicellular Systems</b>		
BIOL 4440	PLANT PHYSIOLOGY	4
BIOL 4460	COMPARATIVE IMMUNOLOGY	4
BIOL 4850 & BIOL 4830	DEVELOPMENTAL BIOLOGY and DEVELOPMENTAL GENETICS	5

<b>Group III</b>		
<b>Biodiversity</b>		
BIOL/GEOL 3100	INVERTEBRATE PALEONTOLOGY (with the following lab)	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 4780	VERTEBRATE ZOOLOGY	4
BIOL 4790	MAMMALOLOGY	4
BIOL 4840	HERPETOLOGY	4
BIOL 4940	ENTOMOLOGY	4
BIOL 4980	ORNITHOLOGY	4

<b>Group IV</b>		
<b>Ecology, Evolution, and Conservation Biology</b>		
BIOL 4180	FRESHWATER ECOLOGY	4
BIOL 4220	POPULATION BIOLOGY	4
BIOL 4240 & BIOL 4250	MARINE BIOLOGY and FIELD MARINE BIOLOGY	4
BIOL 4410	WETLAND ECOLOGY AND MANAGEMENT	3

Code	Title	Credits
<b>Required Cognate Coursework in Chemistry</b>		
CHEM 1140 & CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY and FUNDAMENTALS OF COLLEGE CHEMISTRY LABORATORY	5
CHEM 2210 & CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY	5
CHEM 3650 & CHEM 3654	FUNDAMENTALS OF BIOCHEMISTRY and FUNDAMENTALS OF BIOCHEMISTRY LABORATORY	4

<b>Required Cognate Coursework in Physics</b>		
PHYS 1110 & PHYS 1154	GENERAL PHYSICS I and GENERAL PHYSICS LABORATORY I	5

<b>Other Required Cognate Coursework</b>		
MATH 1220	COLLEGE ALGEBRA (or higher math course)	3
STAT 1530	ELEMENTARY STATISTICS	3
GEOL 1170	INTRODUCTION TO PHYSICAL GEOLOGY	4
<b>Required Education Coursework</b>		
TED 2100	EDUCATIONAL FOUNDATIONS	3

TED 2200	HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS	3
TED 2380	DEVELOPMENT AND LEARNING IN ADOLESCENCE	3
TED 2400	PLANNING FOR EFFECTIVE TEACHING	6
TED 3550	SECONDARY CLASSROOM MANAGEMENT	3
TED 3690	LITERACY AND LEARNING	3
SPED 3800	DIFFERENTIATION AND INCLUSIVE PRACTICES	3
TED 4000	SPECIAL METHODS IN THE CONTENT AREA	3
TED 4600	CLINICAL PRACTICE AND SEMINAR: ELEMENTARY OR SECONDARY LEVEL	12

Must pass Praxis I Core Exam for formal acceptance to Educator Preparation Program; Praxis II Content test required (at completion of endorsement)

**Freshman**

Fall		Credits
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1220 or MATH 1300	COLLEGE ALGEBRA (**) or COLLEGE ALGEBRA WITH SUPPORT	3-4
BIOL 1450	BIOLOGY I (***)	5
Social Science		3

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

\*\*MATH 1220: requires appropriate placement. Higher levels of Math may substitute. Please see your advisor for options.

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

**Credits 14-15**

**Spring**

ENGL 1160	ENGLISH COMPOSITION II (*)	3
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
BIOL 1750	BIOLOGY II	5
Humanities and Fine Arts		3
Social Science		3

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

Recommended: Begin studying for Praxis CORE Academic Skills.

**Credits 17**

**Summer**

PHYS 1110 & PHYS 1154	GENERAL PHYSICS I and GENERAL PHYSICS LABORATORY I (*)	5
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\*PHYS 1110: requires MATH 1220 (or MATH 1300) or higher or proficiency via ACT, SAT or Math Placement Exam score.

**Credits 5**

**Sophomore**

**Fall**

TED 2100	EDUCATIONAL FOUNDATIONS (*)	3
TED 2200	HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS	3
CHEM 1140 & CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY and FUNDAMENTALS OF COLLEGE CHEMISTRY LABORATORY (**)	5
BIOL 2740	HUMAN ANATOMY AND PHYSIOLOGY I	4

\*TED 2100 and 2200: Requires 2.50 GPA.  
 \*\*CHEM 1140: requires C- or better in MATH 1220 (or MATH 1300) or higher. ACT, SAT, AP or Math Placement Exam scores may substitute for the Math prereq to Chemistry 1140. Must take CHEM 1144 concurrently.  
 Required: Apply for Educator Preparation Program at this time.

**Credits 15**

**Spring**

BIOL 2140	GENETICS (**)	4
CHEM 2210 & CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY (***)	5
GEOL 1170	INTRODUCTION TO PHYSICAL GEOLOGY	4

\*\*BIOL 2140: requires BIOL 1450 and 1750, as well as CHEM 1140 or 1180.

\*\*\*CHEM 2210: requires CHEM 1140 and 1144 or CHEM 1190 and 1194, either of which must be earned with a C- or better. CHEM 2214 to be taken concurrently. Please refer to your advisor or the catalog for other Chemistry options.

Recommended but not required: Pass the Praxis CORE Academic Skills.

**Credits 13**

**Summer**

STAT 1530	ELEMENTARY STATISTICS (*)	3
BIOL 3020	MOLECULAR BIOLOGY OF THE CELL (**)	3

\*STAT 1530: requires appropriate placement.

\*\*BIOL 3020: requires BIOL 2140 and CHEM 1180 or 1190.

**Credits 6**

**Junior**

**Fall**

TED 2380	DEVELOPMENT AND LEARNING IN ADOLESCENCE (*)	3
TED 2400	PLANNING FOR EFFECTIVE TEACHING (*)	6
BIOL 4230	EVOLUTION (**)	3
Social Science with U.S. Diversity***		3

\*TED 2400 and 2380 must be taken back-to-back, in either a Morning or Afternoon block.

\*\*BIOL 4230: requires BIOL 2140; junior-senior standing

\*\*\*SS must be in a 2nd discipline.

Required: Pass Praxis CORE Academic Skills by the end of this semester.

Required: Acceptance into Educator Preparation Program. Must have 2.75 GPA.

**Credits 15**

**Spring**

TED 3550	SECONDARY CLASSROOM MANAGEMENT (*)	3
TED 3690	LITERACY AND LEARNING (*)	3
BIOL 3830	BIOLOGY OF PATHOGENIC MICROORGANISMS (**)	3
BIOL 3240	INTRODUCTION TO IMMUNOLOGY (***)	3
CHEM 3650 & CHEM 3654	FUNDAMENTALS OF BIOCHEMISTRY and FUNDAMENTALS OF BIOCHEMISTRY LABORATORY (#)	4

\*TED 3550 and TED 3690 must be taken back-to-back, in either a Morning or Afternoon block.

\*\*BIOL 3830: requires BIOL 2440 or 3240 or 2140. BIOL 4644 may be taken concurrently.

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

\*\*\*BIOL 3240: requires BIOL 1450, 1750 and 2140. Requires junior standing. Recommended: BIOL 3020.

#CHEM 3650: requires CHEM 2210 & CHEM 2214 or CHEM 2260 & CHEM 2274, either of which must be earned with a grade of C- or better. CHEM 3654 to be taken concurrently.

**Credits 16**

**Summer**

BIOL 3340 ECOLOGY (\*) 4

Humanities and Fine Arts/Global Diversity 3

\*BIOL 3340: requires BIOL 1450 and 1750; junior-senior standing or graduate student.

**Credits 7**

**Senior**

**Fall**

TED 4000 SPECIAL METHODS IN THE CONTENT AREA (\*) 3

SPED 3800 DIFFERENTIATION AND INCLUSIVE PRACTICES (\*) 3

Advanced Themes Biology course w/lab 3-4

Humanities/Fine Arts\*\* 3

\*SPED 3800: Must be taken concurrently with TED 4000 or TED 3550

\*\*HFA must be in a 2nd discipline.

Recommended but not required: Pass Praxis II.

**Credits 12-13**

**Spring**

TED 4600 CLINICAL PRACTICE AND SEMINAR: ELEMENTARY OR SECONDARY LEVEL (\*) 12

\*Candidates must complete all course work, have a minimum cumulative GPA of 2.75, passing Praxis Core scores (Math, Reading, and Writing), and be accepted into Clinical Practice.

**Credits 12**

**Total Credits 132-134**

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

GPA Requirements: Cumulative 2.5 GPA for Educator Preparation Program initial acceptance, cumulative 2.75 GPA for formal admission and graduation.

Graduation Requirements: Students must have a cumulative GPA of at least 2.75, no grade lower than "C" in required courses, and no incomplete in required courses to be recommended for graduation.

**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>