

COLLEGE OF SCIENCE & MATHEMATICS

MAJOR: BIOLOGICAL SCIENCES &

BIOLOGICAL SCIENCES – Environmental Science Option

ACADEMIC YEAR: 2013-2014

DEGREE TYPE: B.A. or B.S.

REQUIRED DEGREE CREDITS TO GRADUATE: 122

GENERAL EDUCATION REQUIREMENTS – 40 CREDITS

Lower Division Requirements – 37 Credits

First Year Experience (F) - 1 Credit

UNIV	189	Skills for Academic Success	1 cr
Students transferring in 24 or more credits do not need to take UNIV 189.			

Communication (C) - 9 Credits

ENGL	110	College Composition I	3 cr
ENGL	120	College Composition II	3 cr
COMM	110	Fund of Public Speaking	3 cr

Quantitative Reasoning (R) - 3 Credits

STAT	330	Introductory Statistics	3 cr
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Science & Technology (S) - 10 Credits

The 10 credits required in the Science and Technology category will be fulfilled with requirements of the major.

Humanities & Fine Arts (A) - 6 Credits

Select from current general education courses www.ndsu.edu/registrar/gened/

Social & Behavioral Sciences (B) - 6 Credits

Select from current general education courses www.ndsu.edu/registrar/gened/

Wellness (W) - 2 Credits

Select from current general education courses www.ndsu.edu/registrar/gened/

Cultural Diversity (D)

Select from current general education courses www.ndsu.edu/registrar/gened/

Global Perspectives (G)

Select from current general education courses www.ndsu.edu/registrar/gened/

Upper Division Requirements - Writing – 3 Credits

ENGL	324	Writing in the Sciences	3 cr
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BIOLOGICAL SCIENCES-STANDARD OPTION- 38-39 CREDITS

Core Courses – 26-27 Credits

BIOL	150/L	General Biology I & Lab	3/1 cr
BIOL	151/L	General Biology II & Lab	3/1 cr
BIOL	459	Evolution	3 cr
BIOL	491	Capstone Seminar	2 cr
BIOL	315/L	Genetics/Lab	3/1 cr
BIOL/ZOO	364	General Ecology	3 cr
BOT	314 or	Plant Systematics	3 or 4 cr
	372 or	Structure & Diversity of Plants and Fungi	
	380 or	Plant Physiology	
	460	Plant Ecology	
ZOO	370	Cell Biology	3 cr

Electives –Choose 12 Credits of additional electives from the list below

BIOL	478	Methods in Animal Physiology	3 cr
BOT	380	Plant Physiology	3 cr
ZOO	380	Vertebrate Histology	3 cr
ZOO	460	Animal Physiology	3 cr
ZOO	464	Endocrinology	3 cr
ZOO	482	Developmental Biology	3 cr
BOT	314	Plant Systematics	3 cr
BOT	372	Structure and Diversity of Plants & Fungi	4 cr
ZOO	280	Comparative Chordate Morphology	4 cr
ZOO	360	Animal Behavior	3 cr
ZOO	450	Invertebrate Zoology	4 cr
ZOO	452	Ichthyology	3 cr
ZOO	454	Herpetology	3 cr
ZOO	456	Ornithology	3 cr
ZOO	458	Mammalogy	3 cr
ZOO	472	Fisheries Biology	3 cr
BIOL	480	Ecotoxicology	3 cr
BIOL	481	Wetland Science	3 cr
BOT	460	Plant Ecology	3 cr
ZOO	462	Physiological Ecology	3 cr
ZOO	470	Limnology	4 cr
ZOO	474	Fish Management	3 cr
ZOO	475	Conservation Biology	3 cr
ZOO	476	Wildlife Ecology & Management	3 cr
ZOO	477	Wildlife & Fisheries Management Tech	3 cr

RELATED REQUIRED COURSES – 33 - 36 CREDITS

Chemistry – 8 Credits

CHEM	121/L	General Chemistry I/Lab	3/1 cr
CHEM	122/L	General Chemistry II/ Lab	3/1 cr

Math-4 Credits

MATH	146	Applied Calculus I	4 cr
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Physics-8 Credits

PHYS	211/L	College Physics I & Lab	3/1 cr
PHYS	212/L	College Physics II & Lab	3/1 cr

Organic Chemistry & Biochemistry – 7-10 Credits**Choose One Group:****Group 1:**

CHEM	240	Survey of Organic Chemistry	3 cr
CHEM	260	Elements of Biochemistry	4 cr

Group 2:

CHEM	341/L	Organic Chemistry I & Lab	3/1 cr
CHEM	342	Organic Chemistry II	3 cr
BIOC	460	Found/Biochem/Molecular Biol I	3 cr

Earth Science (choose 2 with lab if separate) – **6-8 Credits**

GEOL	105/L	Physical Geology & Lab	3/1 cr
GEOL	106/L	The Earth Through Time & Lab	3/1 cr
SOIL	210	Intro to Soil Science	3 cr
SOIL	217	Meteorology & Climatology	3 cr

DEGREE REQUIREMENTS – UP TO 15 CREDITS TO REACH 122**BIOLOGICAL SCIENCES – ENVIRONMENTAL SCIENCE OPTION – 38 CREDITS****Core Courses – 26 Credits**

BIOL	150/L	General Biology I & Lab	3/1 cr
BIOL	151/L	General Biology II & Lab	3/1 cr
BIOL	459	Evolution	3 cr
BIOL	491	Capstone Seminar	2 cr
BIOL	315/L	Genetics/Lab	3/1 cr
BIOL/ZOO	364	General Ecology	3 cr
BIOL	480	Ecotoxicology	3 cr
BOT	314 or	Plant Systematics	3/4 cr
	372 or	Structure & Diversity of Plants and Fungi	
	380 or	Plant Physiology	
	431 or	Intermediate Genetics	
	450 or	Range Plants	
	460	Plant Ecology	

Electives – 12 Credits

BIOL	478	Methods in Animal Physiology	3 cr
BOT	380	Plant Physiology	3 cr
BOT	431	Intermediate Genetics	3 cr
ZOO	370	Cell Biology	3 cr
ZOO	380	Vertebrate Histology	3 cr
ZOO	460	Animal Physiology	3 cr
ZOO	464	Endocrinology	3 cr
ZOO	482	Developmental Biology	3 cr
BOT	314	Plant Systematics	3 cr
BOT	372	Structure and Diversity of Plants & Fungi	4 cr
ZOO	280	Comparative Chordate Morphology	4 cr
ZOO	360	Animal Behavior	3 cr
ZOO	450	Invertebrate Zoology	4 cr
ZOO	452	Ichthyology	3 cr
ZOO	454	Herpetology	3 cr
ZOO	456	Ornithology	3 cr
ZOO	458	Mammalogy	3 cr
ZOO	472	Fisheries Biology	3 cr
BIOL	481	Wetland Science	3 cr

BOT	450	Range Plants	3 cr
BOT	460	Plant Ecology	3 cr
ZOO	462	Physiological Ecology	3 cr
ZOO	470	Limnology	4 cr
ZOO	474	Fish Management	3 cr
ZOO	475	Conservation Biology	3 cr
ZOO	476	Wildlife Ecology & Management	3 cr
ZOO	477	Wildlife & Fisheries Management Tech	3 cr

RELATED REQUIRED COURSES – 41-53 CREDITS**Earth Sciences-14 Credits**

GEOL	105/L	Physical Geology & Lab	3/1 cr
GEOL	106/L	The Earth Through Time & Lab	3/1 cr
SOIL	217	Meteorology & Climatology	3 cr
SOIL	410	Soils and Land Use	3 cr

Chemistry-11-23 Credits

CHEM	121/L	General Chemistry I/Lab	3/1 cr
CHEM	122/L	General Chemistry II/ Lab	3/1 cr
CHEM	431/L or	Analytical Chemistry I & Lab	3 or 5 cr
GEOL	428	Geochemistry	

Choose One Group:**Group 1:**

CHEM	240	Survey of Organic Chemistry	3 cr
CHEM	260	Elements of Biochemistry	4 cr

Group 2:

CHEM	341/L	Organic Chemistry I & Lab	3/1 cr
CHEM	342	Organic Chemistry II	3 cr
BIOC	460	Found/Biochem/Molecular Biol I	3 cr

Math-8 Credits

MATH	146	Applied Calculus I	4 cr
MATH	147	Applied Calculus II	4 cr

Physics-8 credits

PHYS	211/L	College Physics I & Lab	3/1 cr
PHYS	212/L	College Physics II & Lab	3/1 cr

DEGREE REQUIREMENTS – UP TO 7 CREDITS TO REACH 122**DEPARTMENT AND COLLEGE REQUIREMENTS:**

- Students may not minor in biology with this major
- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.

Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences*

Bachelor of Arts (BA) Degree – An additional 12 credits Humanities and Social Sciences* and proficiency at the second year level in a modern foreign language.

*Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major.