

Biological Sciences

Department Information

- **Department Location:**
Stevens Hall
- **Department Phone:**
701-231-7087
- **Department Web Site:**
www.ndsu.edu/biology/
- **Degrees Offered:**
B.S.; B.A.
- **Plan Of Study Sample:**
bulletin.ndsu.edu/programs-study/undergraduate/biological-science/

Major Requirements

Major: Biological Sciences - Standard

Degree Type: B.A. or B.S.

Minimum Degree Credits to Graduate: 120

University Degree Requirements

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specific by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 36 credits presented for graduation must be in courses number 300 or higher.
6. Transfer Students: Must earn a minimum of 60 credits from a baccalaureate-degree granting or professional institution.
 - a. Of these 60, at least 36 must be NDSU residence credits as defined in #7.
 - b. Within the 36 resident credits, a minimum of 15 must be in courses numbered 300 or higher and 15 credits in the major field of study.
7. At least 36 credits must be NDSU resident credits. Residence credits include credits registered and paid for at NDSU.

For complete information, please refer to the Degree and Graduation Requirements (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/academic-policies/undergraduate-policies/degree-and-graduation>) section of this Bulletin.

University Degree Requirements

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specific by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 36 credits presented for graduation must be in courses number 300 or higher.
6. Transfer Students: Must earn a minimum of 60 credits from a baccalaureate-degree granting or professional institution.
 - a. Of these 60, at least 36 must be NDSU residence credits as defined in #7.
 - b. Within the 36 resident credits, a minimum of 15 must be in courses numbered 300 or higher and 15 credits in the major field of study.
7. At least 36 credits must be NDSU resident credits. Residence credits include credits registered and paid for at NDSU.

For complete information, please refer to the Degree and Graduation Requirements (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/academic-policies/undergraduate-policies/degree-and-graduation>) section of this Bulletin.

University General Education Requirements

Code	Title	Credits
Communication (C)		12
ENGL 110	College Composition I	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Upper Division Writing [†]		

Quantitative Reasoning (R) [†]	3
Science and Technology (S) [†]	10
Humanities and Fine Arts (A) [†]	6
Social and Behavioral Sciences (B) [†]	6
Wellness (W) [†]	2
Cultural Diversity (D) ^{*†}	
Global Perspectives (G) ^{*†}	
Total Credits	39

* May be satisfied by completing courses in another General Education category.

† General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

- A list of university approved general education courses and administrative policies are available here (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/academic-policies/undergraduate-policies/general-education/#genedcoursestext>).

College Requirements

Code	Title	Credits
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. *		12
Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences *		6

* 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.

Major Requirements

Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail

Code	Title	Credits
Biological Sciences Core Requirements - Standard Option		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
BIOL 189	Skills for Academic Success ¹	1
BIOL 252	Plant and Animal Diversity	3
BIOL 270 or BIOL 271 or BIOL 272	Antibiotic Drug Discovery Wildlife Ecology and Conservation: An undergraduate research course Research Experience: Learning in Biology	3
BIOL 315 & 315L	Genetics and Genetics Laboratory	4
BIOL 359	Evolution	3
BIOL 364 or BIOL 370	General Ecology Cell Biology	3
BIOL 491	Seminar	2
Electives: Select 15 credits of any 300 or 400 level courses offered in the department:		15
BIOL 410	Comparative Chordate Morphology	
BIOL 414	Plant Systematics	
BIOL 444	Vertebrate Histology	
BIOL 450	Invertebrate Zoology	
BIOL 452	Ichthyology	
BIOL 454	Herpetology	
BIOL 456	Ornithology	

BIOL 460	Animal Physiology
BIOL 461	Plant Ecology
BIOL 462	Physiological Ecology
BIOL 464	Endocrinology
BIOL 465	Hormones and Behavior
BIOL 472	Structure and Diversity of Plants and Fungi
BIOL 475	Conservation Biology
BIOL 476	Wildlife Ecology and Management
BIOL 477	Wildlife and Fisheries Management Techniques
BIOL 479	Biomedical Genetics and Genomics
BIOL 480	Ecotoxicology
BIOL 481	Wetland Science
BIOL 483	Cellular Mechanisms of Diseases
PLSC 380	Principles of Plant Physiology

Related Required Courses

MATH 146 or MATH 165	Applied Calculus I (May satisfy general education category R) Calculus I	4
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory (May satisfy general education category S)	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory (May satisfy general education category S)	4
Select one of the following:		3 or 8
CHEM 240	Survey of Organic Chemistry	
CHEM 341 & 341L & CHEM 342 & CHEM 342L	Organic Chemistry I and Organic Chemistry I Laboratory and Organic Chemistry II and Organic Chemistry II Laboratory	
Select one of the following:		3 or 8
PHYS 120	Fundamentals of Physics (May satisfy general education category S)	
PHYS 211 & 211L & PHYS 212 & PHYS 212L	College Physics I and College Physics I Laboratory and College Physics II and College Physics II Laboratory (May satisfy general education category S)	
Total Credits		60-70

¹ BIOL 189 is only required for first-time, first-year students--A first-time, first-year student is defined as a student who has not yet completed a college course as a college student. Students that are not first-time, first-year students that either transfer into the university or change their major are not required to take BIOL 189.

Department NOTES

- Students may not minor in biology with this major

Link to view program description and 4-year Plan of Study (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/programs-study/undergraduate/biological-science>)

Major Requirements**Major: Biological Sciences - Environmental Science Option**

Degree Type: B.A. or B.S.

Minimum Degree Credits to Graduate: 120

University General Education Requirements

Code	Title	Credits
Communication (C)		
ENGL 110	College Composition I	12
ENGL 120	College Composition II	

COMM 110	Fundamentals of Public Speaking	
Upper Division Writing [†]		
Quantitative Reasoning (R) [†]		3
Science and Technology (S) [†]		10
Humanities and Fine Arts (A) [†]		6
Social and Behavioral Sciences (B) [†]		6
Wellness (W) [†]		2
Cultural Diversity (D) ^{*†}		
Global Perspectives (G) ^{*†}		
Total Credits		39

* May be satisfied by completing courses in another General Education category.

† General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

- A list of university approved general education courses and administrative policies are available here (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/academic-policies/undergraduate-policies/general-education/#genedcoursestext>).

College Requirements

Code	Title	Credits
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. *		12
Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences *		6

* 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.

Major Requirements

Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.

Code	Title	Credits
Biological Sciences Core Requirements - Environmental Science Option		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
BIOL 189	Skills for Academic Success ¹	1
BIOL 359	Evolution	3
BIOL 491	Seminar	2
BIOL 315 & 315L	Genetics and Genetics Laboratory	4
BIOL 364	General Ecology	3
BIOL 480	Ecotoxicology	3
Select one of the following:		3-4
BIOL 472	Structure and Diversity of Plants and Fungi	
BIOL 414	Plant Systematics	
BIOL 461	Plant Ecology	
BOT 450	Range Plants	
PLSC 380	Principles of Plant Physiology	
Electives: Select 12 credits from the following:		12
BIOL 270	Antibiotic Drug Discovery	
BIOL 370	Cell Biology	
BIOL 410	Comparative Chordate Morphology	

BIOL 444	Vertebrate Histology	
BIOL 450	Invertebrate Zoology	
BIOL 452	Ichthyology	
BIOL 454	Herpetology	
BIOL 456	Ornithology	
BIOL 458	Mammalogy	
BIOL 460	Animal Physiology	
BIOL 461	Plant Ecology (If not used above)	
BIOL 462	Physiological Ecology	
BIOL 463	Animal Behavior	
BIOL 464	Endocrinology	
BIOL 465	Hormones and Behavior	
BIOL 472	Structure and Diversity of Plants and Fungi (If not used above)	
BIOL 475	Conservation Biology	
BIOL 476	Wildlife Ecology and Management	
BIOL 477	Wildlife and Fisheries Management Techniques	
BIOL 481	Wetland Science	
BIOL 482	Developmental Biology	
BOT 450	Range Plants (If not used above)	
PLSC 380	Principles of Plant Physiology (If not used above)	

Related Required Courses

CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4
GEOL 105 & 105L	Physical Geology and Physical Geology Lab	4
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab	4
MATH 146	Applied Calculus I	4
MATH 147	Applied Calculus II	4
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	4
PHYS 212 & 212L	College Physics II and College Physics II Laboratory	4
SOIL 217	Introduction to Meteorology & Climatology	3
SOIL 410	Soils and Land Use	3
STAT 330	Introductory Statistics	3
Select one from the following:		3 or 4

GEOL 428	Geochemistry	
----------	--------------	--

CHEM 431 & 431L	Analytical Chemistry I and Analytical Chemistry I Laboratory	
--------------------	---	--

Select one of the following:		7 or 10
------------------------------	--	---------

CHEM 240 & BIOC 260	Survey of Organic Chemistry and Elements of Biochemistry	
------------------------	---	--

CHEM 341 & 341L & CHEM 342 & BIOC 460	Organic Chemistry I and Organic Chemistry I Laboratory and Organic Chemistry II and Foundations of Biochemistry and Molecular Biology I	
--	--	--

Total Credits		90-95
---------------	--	-------

¹ BIOL 189 is only required for first-time, first-year students--A first-time, first-year student is defined as a student who has not yet completed a college course as a college student. Students that are not first-time, first-year students that either transfer into the university or change their major are not required to take BIOL 189.

Department notes

- Students may not minor in biology with this major

Minor Requirements**Biological Sciences Minor****Minor Requirements**

Required Credits: 17

Code	Title	Credits
Required Courses		
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Laboratory	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Laboratory	1
Select one of the following:		3-4
BIOL 414	Plant Systematics	
BIOL 461	Plant Ecology	
BIOL 472	Structure and Diversity of Plants and Fungi	
PLSC 380	Principles of Plant Physiology	
Electives	Department approved 300-400 level courses	6
Total Credits		17

Minor Requirements and Notes

- A minimum of 8 credits must be taken at NDSU.
- Botany and Zoology majors may not minor in Biological Sciences.