

# Botany

The science of botany is the study of plants including plant structure, function, systematics and ecology. Students study a wide variety of activities such as the relationship of plants to each other and their environment, plant growth and metabolism, classification and identification of plants, plant cell composition and plant heredity.

Departmental instruction is offered in the major area of Botany for students in all colleges of the university, but botany courses and instructional procedures are specially designed for undergraduate and graduate students in the College of Science and Mathematics and the College of Agriculture, Food Systems, and Natural Resources. Completion of an undergraduate major prepares the students for graduate work or for professional employment. Graduate work in Botany is offered at both the M.S. and Ph.D. levels. A minor in Botany also is available. Botany majors may not pursue a minor in Biology or Botany.

## Major Requirements

### Major: Botany

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

**Required Degree Credits to Graduate: 122**

### General Education Requirements

#### First Year Experience (F):

UNIV 189	Skills For Academic Success (Students transferring in 24 or more credits do not need to take UNIV 189.)	1
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#### Communication (C):

ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
ENGL 324	Writing in the Sciences	3
COMM 110	Fundamentals of Public Speaking	3

#### Quantitative Reasoning (R):

STAT 330	Introductory Statistics	3
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#### Science & Technology (S): 10

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

#### Humanities & Fine Arts (A): Select from current general education list 6

#### Social & Behavioral Sciences (B): Select from current general education list 6

#### Wellness (W): Select from current general education list 2

#### Cultural Diversity (D): Select from current general education list

#### Global Perspectives (G): Select from current general education list

Total Credits		40
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## College Requirements

**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.

## Major Requirements

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

<b>General Education Requirements</b>		40
<b>Science and Mathematics College Requirements</b>		6-12
<b>Botany Core Requirements</b>		
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 359	Evolution	3
BOT 314	Plant Systematics	3
BOT 315 & 315L	Genetics and Genetics Laboratory	4
BOT 460	Plant Ecology	3
BOT 372	Structure and Diversity of Plants and Fungi	4
BOT 491	Seminar	2
Major Electives: Select 11 credits from the following:		11
BIOL/ZOO 364	General Ecology	
BIOL 480	Ecotoxicology	
BIOL 481	Wetland Science	
BOT 380	Plant Physiology	
ZOO 370	Cell Biology	
ZOO 380	Vertebrate Histology	
ZOO 460	Animal Physiology	
ZOO 464	Endocrinology	
ZOO 482	Developmental Biology	
ZOO 280	Comparative Chordate Morphology	
ZOO 360	Animal Behavior	
ZOO 452	Ichthyology	
ZOO 454	Herpetology	
ZOO 456	Ornithology	
ZOO 458	Mammalogy	
ZOO 462	Physiological Ecology	
ZOO 476	Wildlife Ecology and Management	
ZOO 477	Wildlife and Fisheries Management Techniques	

### Related Required Courses

#### Chemistry:

CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4

Organic Chemistry and Biochemistry: Select one group from the following: 7-10

Group 1:		
CHEM 240	Survey of Organic Chemistry	
CHEM 260	Elements of Biochemistry	
Group 2:		
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	
CHEM 342	Organic Chemistry II	
BIOC 460	Foundations of Biochemistry and Molecular Biology I	
Math:		
MATH 146	Applied Calculus I	4
Physics:		
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	4
PHYS 212 & 212L	College Physics II and College Physics II Laboratory	4
<b>Degree Requirements: Potential of 21 credits to reach 122</b>		<b>21</b>
Total Credits		122-131

## Department and College Requirements

- Students may not minor in biology or botany with this major

## Minor Requirements

### Botany Minor

#### Minor Requirements

Required Credits: 19

#### 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
BOT/BIOL 315	Genetics	3
BOT/BIOL 315L	Genetics Laboratory	1
BOT 372	Structure and Diversity of Plants and Fungi	4
Botany Elective	300-400 level	3
Total Credits		19

### Minor Requirements and Notes

- A minimum of 8 credits must be taken at NDSU.
- Botany majors may not minor in Botany or Biology.