Bachelor of Science

Biology (BS)

Requirements

Lower-Division General Education

Written Communication (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#written)	6
Oral Communication (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#oral)	3
Mathematics (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#math)	3
Language and Culture (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#language)	0-6
Information Literacy and Research (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#information)	3
Human Behavior (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#behavior)	3
Human Creativity (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#creativity)	3
Interpreting the Past (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#interpret)	3
Literature (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#literature)	3
Philosophy and Ethics (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#philosophy)	3
The Nature of Science (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#nature)	8
Impact of Technology (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#impact)	3

Mathematics: Select MATH 205 or MATH 211; C or better required

Information Literacy and Research: CS 121G, CS 126G, or OEAS 130G required

Nature of Science: met by CHEM 121N-CHEM 122N and CHEM 123N-CHEM 124N

Upper-Division General Education Requirements

- Option A. Approved Disciplinary Minor (a minimum of 12 hours determined by the department) or second degree or second major.
- Option B: Interdisciplinary Minor (specifically 12 hours, 3 of which may be in the major)
- Option C. An approved Certification Program such as teaching licensure
- Option D. Two Upper-Division (300-level or above) courses from outside the College of Sciences and not required by the major (6 hours)

Requirements for Graduation

Requirements for graduation include the following:

- Minimum of 120 credit hours.
- Minimum of 30 credit hours overall and 12 credit hours of upper-level courses in the major program from Old Dominion University.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward the major.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward a minor.
- Completion of ENGL 110C, ENGL 211C or ENGL 231C, and the writing intensive (W) course in the major with a grade of C or better. The W course must be taken at Old Dominion University.
- Completion of Senior Assessment.

Biology Core

Required Biology Core Courses (C or better required in each course)		
BIOL 121N & BIOL 122N	General Biology I and General Biology I Lab	4
BIOL 123N & BIOL 124N	General Biology II and General Biology II Lab	4
Upon completion of the above sequences, students must complete the following core courses, some of which are prerequisites or corequisites for upper-level biology courses (see course descriptions for individual courses):		
BIOL 291	Ecology	3
BIOL 292	Evolution	3
BIOL 293	Cell Biology	3
BIOL 294	Genetics	3
Total Credit Hours		**20**

Writing Intensive Requirement

In addition to the core courses, all majors must complete at least one writing intensive (W) course at Old Dominion University and earn a grade of C or better: BIOL 401W, BIOL 405W, BIOL 415W, BIOL 423W, BIOL 430W, BIOL 432W, BIOL 436W, BIOL 437W, BIOL 466W, BIOL 468W, BIOL 471W, BIOL 481W, or BIOL 488W. This course should be taken during the junior or senior year after completion of the required prerequisites. Except for BIOL 405W, the W course selected will count towards the upper-division Biology electives. BIOL 405W requires a sponsor and approval of the topic.

Upper-Division Biology Elective Courses

Students must choose at least 30 elective hours at the 300-level or above from the courses offered by the Department of Biological Sciences. Some non-laboratory course options include BIOL 302, BIOL 311, BIOL 331, BIOL 346, BIOL 355, BIOL 403, BIOL 416, BIOL 445, BIOL 446, and BIOL 494.

A minimum of three of the courses must have a structured laboratory/field component. Some examples of these courses include BIOL 301, BIOL 309, BIOL 313, BIOL 314, BIOL 401W, BIOL 404, BIOL 415W, BIOL 420, BIOL 422, BIOL 424, BIOL 426, BIOL 441, BIOL 454, BIOL 455, BIOL 461, and BIOL 481W.

To be clear, BIOL 367 (Cooperative Education), BIOL 368 (Internship) and BIOL 369 (Practicum) courses cannot be used to satisfy the laboratory/field requirement. Additionally, transfer courses will not meet the laboratory/field component unless approved by the Biology curriculum committee. Transfer courses should be submitted to the College of Sciences Advising Office for consideration.

Students may use no more than six credits of unstructured courses to satisfy the requirement (see below). Elective courses must be passed with a grade of C (2.0) or better unless they are specified as Pass/Fail courses, in which case they must be passed (P).

One of the Biology electives must be a writing intensive (W) course.

Experiential Learning

Students may take advantage of several non-classroom experiences ("Unstructured Courses") offered by the Department of Biological Sciences and may receive elective credit for these experiences. These include BIOL 367 (Cooperative Education), BIOL 368 (Internship), BIOL 369 (Practicum), BIOL 497 (Undergraduate Research) and BIOL 498 (Independent Study). BIOL 367, BIOL 368, BIOL 369 and BIOL 498 cannot be used to satisfy the lab/field requirement but can be used to satisfy one of the required elective courses. A passing grade (P) is required. See individual course descriptions and the chief departmental advisor for more information about these opportunities.

Non-Biology Course Requirements

Required Non-Biology Courses (C or better required in each course)		
CHEM 121N	Foundations of Chemistry I Lecture	3
CHEM 122N	Foundations of Chemistry I Laboratory	1
CHEM 123N	Foundations of Chemistry II Lecture	3
CHEM 124N	Foundations of Chemistry II Laboratory	1
CHEM 211	Organic Chemistry I Lecture	3
Select one of the following:		4
PHYS 111N	Introductory General Physics	
OEAS 110N	Earth Science	
OEAS 111N	Physical Geology	
Select one of the following:		3
STAT 130M	Elementary Statistics	
STAT 310	Introductory Data Analysis	
Total Credit Hours		**18**

Biology Major

General Education	
Complete lower-division requirements	33-40
Complete upper-division requirements (minimum of 6 credit hours)	6
Biology	
Complete the biology core	20
Complete upper-level biology elective courses (minimum of 30 credit hours to include writing intensive course)	30
Complete non-biology courses	18
Total Credit Hours	**107-114**

Elective Credit

Elective credit may be needed to meet the minimum requirement of 120 credit hours for the degree.

Honors Program in Biology

A. Honors Research

Undergraduates with junior or senior standing and a GPA of 3.00 or better are eligible to participate in Honors Research. After consultation with the program director (Dr. Deborah A. Waller), students select a professor who agrees to oversee the research project. Students then enroll in two courses, BIOL 487 and BIOL 488W. The courses may be taken in any sequence: fall-spring, spring-summer, summer-summer, summer-fall. Normally both semesters are required but a student may receive credit for only one semester. The research project, time commitment by the student and the basis for the grade are mutually determined by the student and professor. Because first-semester research results are often preliminary, the grade for BIOL 487 is based on a review paper and/or research proposal, which provides the student with an overview of the field. The second semester is graded on the final research paper and a seminar presented to the honors committee and interested faculty. Professors should encourage students to publish results and present papers at scientific meetings when appropriate. Students should also be urged to apply for funds from agencies that provide seed money to undergraduates. The program director can provide information on scientific societies that sponsor meetings and/or offer small grants. Successful completion of both courses with a C (2.0) or better will allow the student to use BIOL 488W as a lab course in meeting his/her requirements.

B. Bachelor's Degree with Honors in Biological Sciences and Honors Designation for Biology courses

Students maintaining an overall GPA of at least 3.25 and of 3.50 in biology can receive a "Bachelor's Degree with Honors in Biological Sciences" subject to satisfaction of the minimum University standards for the Honors degree and completion of one of the following two options:

Option 1: Successful completion of two semesters of biological research taken as BIOL 487 / BIOL 488W (Honors Research).

Option 2: Successful completion of three upper-division courses in Biological Sciences and achievement of the "Honors" designation in each.

Students petitioning for designation of an upper-division biology course as "Honors" must have a minimum overall GPA of 3.25 and a GPA of at least 3.50 in biology.

To receive the "Honors" designation for a course, students must achieve a final course score of at least 95% or the equivalent of an "A" on the University grade scale.

Faculty are encouraged to assign and work with students on other activities deemed appropriate for an "Honors" course designation and utilize the results of these activities in the assignment of a course grade.

Degree Program Guide

The Degree Program Guide is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

Course	Title	Credit Hours
Freshman		
First Semester		
ENGL 110C	English Composition (C or better required)	3
MATH 162M	Precalculus I	3
BIOL 121N	General Biology I	3
BIOL 122N	General Biology I Lab	1
CHEM 121N	Foundations of Chemistry I Lecture	3
CHEM 122N	Foundations of Chemistry I Laboratory	1
	Credit Hours	**14**
Second Semester		
ENGL 211C or ENGL 231C	Writing, Rhetoric, and Research (C or better required) or Writing, Rhetoric, and Research: Special Topics	3
MATH 205 or MATH 211	Calculus for Life Sciences or Calculus I	3-4
BIOL 123N	General Biology II	3
BIOL 124N	General Biology II Lab	1
CHEM 123N	Foundations of Chemistry II Lecture	3
CHEM 124N	Foundations of Chemistry II Laboratory	1
	Credit Hours	**14-15**
Sophomore		
First Semester		
BIOL 291	Ecology	3
BIOL 292	Evolution	3
CHEM 211	Organic Chemistry I Lecture	3
STAT 130M or STAT 310	Elementary Statistics or Introductory Data Analysis	3

CS 121G or CS 126G or OEAS 130G	Introduction to Information Literacy and Research for Scientists or Honors: Introduction to Information Literacy and Research or Research Skills and Information Literacy for the Natural Sciences	3
	Credit Hours	**15**
Second Semester		
BIOL 293	Cell Biology	3
BIOL 294	Genetics	3
Select one of the following:		4
PHYS 111N	Introductory General Physics	
OEAS 110N	Earth Science	
OEAS 111N	Physical Geology	
Human Behavior		3
Literature		3
	Credit Hours	**16**
Junior		
First Semester		
300/400-level Biology elective		4
300/400-level Biology elective		3
Interpreting the Past		3
Language and Culture I		0-3
Elective		4
	Credit Hours	**14-17**
Second Semester		
300/400-level Biology elective		4
300/400-level Biology elective		4
Philosophy		3
Impact of Technology		3
Language & Culture II		0-3
	Credit Hours	**14-17**
Senior		
First Semester		
Biology Writing Intensive (W) course (C or better required)		3
300/400-level Biology elective		4
300/400-level Biology elective		4
Upper-Division General Education course or Minor		3
Oral Communication		3
	Credit Hours	**17**
Second Semester		
300/400-level Biology elective		4
Human Creativity		3
Upper-Division General Education course or Minor		3
Minor or Elective		3
Minor or Elective		3
	Credit Hours	**16**
	Total Credit Hours	**120-127**

BA or BS to MBA (Master of Business Administration) Linked Program

The linked BA/MBA or BS/MBA program is an early entry to the MBA program of study. The early-entry program is designed for well qualified non-business undergraduate ODU students to start their MBA program prior to completing their undergraduate degree. Well qualified non-business undergraduate students may take MBA-level courses as early as three semesters prior to graduation and count up to 12 graduate credits toward their undergraduate degree. Students participating in the early-entry program must earn a minimum of 150 credit hours (120 discrete credit hours for the undergraduate degree and 30 discrete credit hours for the graduate degree). Early-entry program students should carefully consider their undergraduate degree program requirements when planning their course of study. Students in the early-entry program work in close consultation with the MBA Program Office and should refer to information in the Strome College of Business section in the graduate catalog (http://catalog.odu.edu/graduate/stromecollegeofbusiness/) to develop an individualized plan of study based on the required coursework.

BA or BS to MPA (Master of Public Administration) Linked Program

The linked BA/MPA or BS/MPA program provides qualified Old Dominion University undergraduate students with the opportunity to earn a master's degree in public administration while taking credits in the MPA program as an undergraduate student. The program is designed for highly motivated students with the desire to immediately continue their education after the bachelor's degree. The program is especially relevant to individuals seeking to work (or currently working) in the public or non-profit sectors, but is suitable for students from any undergraduate major. Graduate courses may be taken during the fall and spring semester of the student's senior undergraduate year. Up to 12 graduate credits can count toward both the undergraduate and graduate degree and can meet upper-level General Education requirements. After receiving the undergraduate degree, a student will continue with the MPA program, taking MPA courses until completing the required 39 credit hours. Students in the linked program must earn a minimum of 150 credit hours (120 discrete credit hours for the undergraduate degree and 30 discrete credit hours for the graduate degree).

Requirements for admission to the graduate program can be found in the School of Public Service section of the Graduate Catalog (http://catalog.odu.edu/graduate/business/public-service/). For additional information, please contact the School of Public Service in the Strome College of Business.