

## Bachelor of Science

# Geography with a Major in Geographic Information Systems (BS)

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## Requirements

### Lower-Division General Education

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

Written Communication: Grade of C or better required in both courses and in ENGL 110C before declaring major.

Mathematics: BS students must earn C- or better in STAT 130M.

Language and Culture: BS students' competence must be at the 102 level. BA students must have competence through the 202 level. Competence is not met by the associate degree for BA students.

Information Literacy and Research requirement satisfied in the major with GEOG 308.

The Nature of Science: OEAS 106N, OEAS 108N, OEAS 111N, or OEAS 112N is recommended for one of the two nature of science courses.

Impact of Technology requirement can be met with GEOG 306T.

Human Behavior: GEOG 100S and GEOG 101S cannot be used to satisfy this requirement.

### Upper-Division General Education

- Option A. Approved Minor, 12-24 hours; also second degree or second major.
- Option B. Interdisciplinary Minor, 12 hours specified by the department, 3 of which may be in the major area of study.
- Option C. An approved certification program such as teaching licensure.
- Option D. Two Upper-Division Courses from outside the College of Arts and Letters or from the Arts and Humanities Component within the College of Arts and Letters that are 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.

## Geographic Information Systems Major

### General Education

Complete lower-division requirements	35-44
Complete upper-division requirements (minimum of 6 credit hours)	6

### Geography Coursework

GEOG 100S	Human Geography	3
GEOG 101S	Environmental Geography	3
GEOG 300	Maps and Geographic Information	3
GEOG 308	Research Design *	3
GEOG 418	Quantitative Methods **	3
Select one of the following: ***		3

GEOG 400W Seminar in Geography

GEOG 422W Coastal Geography

GEOG 454W Latin America

GEOG 480W Senior Seminar in International Studies

### Geography 300-400 level electives \*\*\*\*

GEOG: 300-400 level electives	9
GEOG 400-level electives	9

### Geographic Information Systems Major

Students substitute the following courses for 12 elective Geography credit hours.

GEOG 402	Geographic Information Systems
GEOG 404	Digital Techniques for Remote Sensing
GEOG 419	Spatial Analysis of Coastal Environments
GEOG 432	Advanced GIS
GEOG 490	Applied Cartography/GIS

**Total Credit Hours** **77-86**

\* C- or better. Meets information literacy and research requirement.

\*\* GEOG 402 and GEOG 404 may be substituted for GEOG 418.

\*\*\* C or better required.

\*\*\*\* At least nine credit hours must be taken at the 400 level. Those wishing to pursue coursework in physical geography may substitute the following ocean, earth and atmospheric science courses for up to 12 credit hours of geography credit: OEAS 306, OEAS 310, OEAS 344W, OEAS 412.

## Electives

Elective courses may be taken for the remainder of the minimum 120 credits required for the degree.

# Honors Program in Geography

The requirements are as follows:

1. Attain an overall grade point average of 3.25.
2. Attain a grade point average in the major of 3.50.
3. Earn honors in nine hours of courses in the major at the 300/400 level, excluding internship and independent study courses, with no more than six hours taken from the same instructor.

## 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
<b>Freshman</b>		
<b>Fall</b>		
ENGL 110C	English Composition (Grade of C or better required)	3
MATH 101M	An Introduction to Mathematics for Critical Thinking (if needed before STAT 130M)	3
Oral Communication		3
Elective or Language and Culture I (May be waived; See requirement details)		3
GEOG 100S	Human Geography	3
<b>Credit Hours</b>		<b>15</b>
<b>Spring</b>		
Human Creativity		3
Interpreting the Past		3
Mathematical Skills:		
STAT 130M	Elementary Statistics (with a C- or better required)	3
Elective or Language and Culture II (May be waived; See requirement details)		3
GEOG 101S	Environmental Geography	3
<b>Credit Hours</b>		<b>15</b>
<b>Sophomore</b>		
<b>Fall</b>		
ENGL 211C or ENGL 231C	Writing, Rhetoric, and Research (Grade of C or better required) or Writing, Rhetoric, and Research: Special Topics	3
Nature of Science I - Recommended:		4
OEAS 106N	Introductory Oceanography	
OEAS 108N	Understanding Global Climate Change	
OEAS 111N	Physical Geology	
OEAS 112N	Historical Geology	
Philosophy and Ethics		3
Human Behavior (GEOG 100S and GEOG 101S cannot be used)		3
GEOG 308	Research Design (Grade of C- or better required; meets Information Literacy and Research)	3
<b>Credit Hours</b>		<b>16</b>

<b>Spring</b>		
Literature		3
Nature of Science II		4
Impact of Technology (Can be met with GEOG 306T)		3
GEOG 300	Maps and Geographic Information	3
GEOG Major Course		3
<b>Credit Hours</b>		<b>16</b>

<b>Junior</b>		
<b>Fall</b>		
GEOG Major Course		3
GEOG Major Course		3
GEOG-300/400-level elective		3
GEOG-300/400-level elective		3
Upper-Division General Education Course or Minor		3
<b>Credit Hours</b>		<b>15</b>

<b>Spring</b>		
Select one of the following: <sup>1</sup>		3
GEOG 400W	Seminar in Geography	
GEOG 422W	Coastal Geography	
GEOG 454W	Latin America	
GEOG 480W	Senior Seminar in International Studies	
GEOG Major course		3
GEOG Major course		3
GEOG-300/400-level elective		3
Upper-Division General Education Course Minor		3
<b>Credit Hours</b>		<b>15</b>

<b>Senior</b>		
<b>Fall</b>		
GEOG Major Course		3
GEOG 400-level elective		3
GEOG 418	Quantitative Methods (GEOG 402 or GEOG 404 may be substituted)	3
Elective course		3
Minor or Elective		3
<b>Credit Hours</b>		<b>15</b>

<b>Spring</b>		
GEOG 400-level elective		3
GEOG 400-level elective		3
Elective course		3
Elective course		1
Minor or Elective		3
<b>Credit Hours</b>		<b>13</b>
<b>Total Credit Hours</b>		<b>120</b>

<sup>1</sup> Grade of C or better required

## **Linked BA/BS in Geography and MA in Humanities**

The linked BA/BS program in geography and the MA in humanities makes it possible for exceptional students to count up to 12 hours of graduate courses toward both an undergraduate and graduate degree. Students 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). Please refer to the Humanities section of this Catalog for additional information on the linked program.

## **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.