

Geography

GEOGRAPHY – GEOG

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Possible career opportunities

Geography is an interdisciplinary study focusing on the spatial relations of physical, cultural and economic systems of our world. As such, geographers are employed in a wide array of fields in many capacities such as: city/county planning; surveying; cartography; aerial photographic interpretation; remote sensing; environmental studies; meteorology; GIS (geographic information systems: and GPS (global positioning systems). Geographers are employed by private sector firms, government and non-profit organizations. Many career options may require more than two years of college study.

Cultural geography careers include geography education at many levels, analyst, consultant and planner. Most career options require more than two years of college study.

Program-level student learning outcomes

Program learning outcomes are subject to change. The most current list of program learning outcomes for each program is published on the DVC website at www.dvc.edu/slo.

**Associate in arts degree
 Social/cultural geography**

Students completing the program will be able to...

- A. describe the spatial organization of the world’s peoples, nations, cultural environments.
- B. compare and contrast the levels of economic development and their underlying environmental and cultural factors.
- C. demonstrate a global view with appreciation for diverse cultures and societies.
- D. demonstrate an understanding of how human activities impact the physical environment.

The social-cultural geography major at Diablo Valley College offers students the opportunity to prepare for a broad range of professions through the study of the spatial distribution of languages, religions and other aspects of human culture. Students will be prepared to transfer to UC, CSU and other four-year colleges and universities to earn a Bachelor’s degree. DVC prepares students to pursue careers in government, business, international relations and education.

The DVC social-cultural geography major consists of 18 units of required courses in which students develop an understanding of the origin, diffusion and spatial distribution of various attributes of human culture.

The DVC social-cultural geography major is intended for transfer. Students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. Students who intend to transfer are advised to select General Education Option 2 (IGETC) or Option 3 (CSU GE). Option 1 (DVC General Education) is not generally advised.

To earn an associate in arts degree with a major in social-cultural geography, students must complete each course used to meet a major requirement with a “C” grade or higher, maintain an overall GPA of 2.5 or higher in the coursework required for the major, and complete general education requirements as listed in the catalog. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>major requirements:</i>		<i>units</i>
ANTHR-130	Cultural Anthropology	3
GEOG-120	Physical Geography	3
GEOG-130	Cultural Geography	3
GEOG-135	World Regional Geography.....	3
GEOG-162	Map Design and Visualization.....	3
SOCIO-131	The Urban Community.....	3
total minimum required units		18

Associate in arts in geography for transfer

Students completing the program will be able to...

- A. describe the various components of the geosystems and explain how they interact.
- B. explain the interaction between physical and human components of the environment and how the nature of interaction varies in different parts of the world.
- C. describe the role and significance of geospatial techniques in assessing and mapping the physical and cultural environments.
- D. describe the characteristics of different cultural realms and demonstrate a respect for diversity that exists between and among cultural or geographic regions.

The associate in arts in geography for transfer is intended for students who plan to complete a bachelor’s degree in a similar major at a CSU campus. Students completing this degree are guaranteed admission to the CSU system, but not to a particular campus or major.

In order to earn the degree, students must:

- Complete 60 CSU-transferable units.
- Complete the California State University-General Education pattern (CSU GE); or the Intersegmental General Education Transfer Curriculum (IGETC) pattern, including the Area 1C requirement for Oral Communication.
- Complete a minimum of 18 units in the major.
- Attain a minimum grade point average (GPA) of 2.0.
- Earn a grade of “C” or higher in all courses required for the major.

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Students transferring to a CSU campus that accepts the degree will be required to complete no more than 60 units after transfer to earn a bachelor’s degree. This degree may not be the best option for students intending to transfer to a particular CSU campus or to a university or college that is not part of the CSU system, or those students who do not intend to transfer.

Some courses in the major satisfy both major and CSU GE/IGETC general education requirements; however, the units are only counted once toward the 60 unit requirement for an associate degree. Some variations in requirements may exist at certain four-year institutions; therefore, students who intend to transfer are advised to refer to the catalog of the prospective transfer institution and consult a counselor.

<i>major requirements:</i>		<i>units</i>
GEOG-120	Physical Geography	3
GEOG-121	Physical Geography Laboratory	1
GEOG-130	Cultural Geography	3

<i>plus at least 6 units from:</i>		
GEOG-125	Introduction to Geographic Information Systems	3
GEOG-135	World Regional Geography	3
GEOG-140	Introduction to Weather	3

<i>plus at least 6 units from any course not used above or:</i>		
ANTHR-130	Cultural Anthropology	3
GEOL-120	Physical Geology	3
GEOG-162	Map Design and Visualization	3

total minimum required units 19

**Associate in science degree
Geographic information systems/
Global positioning system**

Students completing the program will be able to...

- A. analyze the inter-disciplinary applications of GIS, GPS, and remote sensing.
- B. synthesize data from various sources and different formats for spatial analyses.
- C. apply spatial tools and techniques in a research or work environment.
- D. explain the fundamentals of the different geospatial technologies and how they function.

The associate in science degree program in geographic information systems (GIS)/global positioning system (GPS) is designed to prepare students for entry into careers that employ generalized or specialized applications of GIS. GIS is a versatile and powerful technology that allows data input, data management, analysis and display of result within a single setup. Most local, state, and federal government agencies use GIS, as do businesses, planners, architects, foresters, geologists and a host of other occupations. Students learn technical and analytical skills for research as well as practical skills necessary to enter the job market and obtain positions with such titles as GIS technician, GIS specialist, GIS analyst, GIS programmer, GIS coordinator, GIS supervisor and GIS manager. To earn a degree, students must complete each course used to meet a major requirement with a “C” grade or higher and complete general education requirements as listed in the catalog. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>major requirements:</i>		<i>units</i>
GEOG-125	Introduction to Geographic Information Systems (GIS)	3
GEOG-126	Advanced Geographic Information Systems	3
GEOG-129	Field Data Acquisition and Management	3
GEOG-160	Introduction to Remote Sensing	4
GEOG-162	Map Design and Visualization	3

<i>plus at least 6 units from:</i>		
COMSC-101	Computer Literacy	4
COMSC-110	Introduction to Programming	4
COMSC-120	SQL Programming	4
COMSC-138	Advanced Microsoft Office Using Visual Basic for Applications (VBA)	2
COMSC-172	UNIX and Linux Administration	2
COMSC-255	Programming with Java	4

<i>plus at least 6 units from:</i>		
ANTHR-126	Introduction to Archeological Field Methods	3
BIOSC-126	Ecology and Field Biology	4
BIOSC-170	Environmental Science	3
ENGTC-126	Computer Aided Design and Drafting - AutoCAD	3
GEOG-120	Physical Geography	3
GEOG-124	Thinking and Communicating Geospatially	3
GEOG-295	Occupational Work Experience Education in GEOG	1-4
GEOL-120	Physical Geology	3

total minimum required units 28

Geography

Associate in science degree

Meteorology

Students completing the program will be able to...

- A. describe the structure and properties of the atmosphere and atmospheric circulation systems.
- B. develop and explain a forecast in the short to medium time range.
- C. demonstrate the ability to apply atmospheric studies to interdisciplinary and practical applications for commercial and public needs.

The meteorology major at Diablo Valley College offers students the opportunity to prepare for a range of professions through the study of meteorology as an applied science. Students will be prepared to transfer to UC, CSU and other four-year colleges and universities to earn a baccalaureate degree. DVC prepares students to pursue careers in government, private forecasting and broadcast meteorology.

The DVC meteorology major consists of 18 units of required core courses through which students develop an understanding of the atmosphere, the physical principles governing weather, the spatial distribution of weather and how the atmosphere links to other components of earth's physical environment.

The DVC meteorology major is intended for transfer. Students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. Students who intend to transfer are advised to select General Education Option 2 (IGETC) or Option 3 (CSU GE). Option 1 (DVC General Education) is not generally advised.

To earn an associate in science degree with a major in meteorology, students must complete each course used to meet a major requirement with a "C" grade or higher, maintain an overall GPA of 2.5 or higher in the coursework required for the major, and complete general education requirements as listed in the catalog. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>major requirements:</i>		<i>units</i>
GEOG-120	Physical Geography	3
GEOG-121	Physical Geography Laboratory	1
GEOG-135	World Regional Geography.....	3
GEOG-140	Introduction to Weather	3
GEOG-141	Introduction to Weather Laboratory	1
GEOG-162	Map Design and Visualization.....	3
PHYS-120	General College Physics I	4

total minimum required units 18

Associate in science degree

Physical geography

Students completing the program will be able to...

- A. demonstrate proficiency in the use of field data collection and mapping techniques.
- B. demonstrate an understanding of how the physical and human elements of the environment interact and what are the outcomes.
- C. demonstrate a grounding in the modern technical skills of the discipline, including computer cartography, geographic information systems and global positioning systems.

The physical geography major at Diablo Valley College offers students the opportunity to prepare for a range of professions through the study of a broad spectrum of courses related to the physical environment. Students will be prepared to transfer to UC, CSU and other four-year colleges and universities to earn a baccalaureate degree. DVC hones students' spatial and analytical skills while preparing them for careers in spatial technologies and environmental sciences.

The DVC physical geography major consists of 24 units of study. Students are required to take 14 units of core courses in which they develop an understanding of the physical environment and learn how to acquire, map and analyze spatial data relevant to the physical environment.

The DVC physical geography major is intended for transfer. Students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. Students who intend to transfer are advised to select General Education Option 2 (IGETC) or Option 3 (CSU GE). Option 1 (DVC General Education) is not generally advised.

To earn an associate in science degree with a major in physical geography, students must complete each course used to meet a major requirement with a "C" grade or higher, maintain an overall GPA of 2.5 or higher in the coursework required for the major, and complete general education requirements as listed in the catalog. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>major requirements:</i>		<i>units</i>
GEOG-120	Physical Geography	3
GEOG-121	Physical Geography Laboratory	1
GEOG-135	World Regional Geography.....	3
GEOG-140	Introduction to Weather	3
GEOG-141	Introduction to Weather Laboratory	1
GEOG-162	Map Design and Visualization.....	3

<i>plus at least 4 units from:</i>		<i>units</i>
BIOSC-126	Ecology and Field Biology	4
GEOG-125	Introduction to Geographic Information Systems (GIS).....	3
GEOL-120	Physical Geology.....	3
GEOL-122	Physical Geology Laboratory.....	1
GEOL-125	Geology of California	3

total minimum required units 18

Geography

**Certificate of achievement
Geographic information systems/
Global positioning system**

Students completing the program will be able to...

- A. analyze the inter-disciplinary applications of GIS, GPS, and remote sensing.
- B. synthesize data from various sources and different formats for spatial analyses.
- C. apply spatial tools and techniques in a research or work environment.
- D. explain the fundamentals of geospatial technologies and how they operate.

The geographic information systems (GIS)/global positioning system (GPS) program is designed to prepare students for entry into careers that employ generalized or specialized applications of GIS. GIS is a versatile and powerful technology that allows data input, data management, analysis and display of result within a single setup. Most local, state, and federal government agencies use GIS, as do businesses, planners, architects, foresters, geologists and a host of other occupations. Students learn technical and analytical skills for research as well as practical skills necessary to enter the job market and obtain positions with such titles as GIS technician, GIS specialist, GIS analyst, GIS programmer, GIS coordinator, GIS supervisor and GIS manager.

To earn a certificate of achievement, students must complete each course used to meet a certificate requirement with a "C" grade or higher. Required courses are available in the evening and during the day.

<i>required courses:</i>	<i>units</i>
GEOG-125 Introduction to Geographic Information Systems (GIS).....	3
GEOG-126 Advanced Geographic Information Systems.....	3
GEOG-129 Field Data Acquisition and Management	3
GEOG-160 Introduction to Remote Sensing	4
GEOG-162 Map Design and Visualization.....	3

plus at least 6 units from:

COMSC-101 Computer Literacy.....	4
COMSC-110 Introduction to Programming.....	4
COMSC-120 SQL Programming	4
COMSC-138 Advanced Microsoft Office Using Visual Basic for Applications (VBA).....	2
COMSC-172 UNIX and Linux Administration.....	2
COMSC-255 Programming with Java	4

plus at least 6 units from:

ANTHR-126 Introduction to Archeological Field Methods.....	3
BIOSC-126 Ecology and Field Biology	4
BIOSC-170 Environmental Science	3
ENGTC-126 Computer Aided Design and Drafting - AutoCAD.....	3
GEOG-120 Physical Geography	3
GEOG-124 Thinking and Communicating Geospatially.....	3
GEOG-295 Occupational Work Experience Education in GEOG	1-4
GEOL-120 Physical Geology.....	3

total minimum required units 28

**Certificate of accomplishment
Geographic information systems/
Global positioning system**

Students completing the program will be able to...

- A. analyze the inter-disciplinary applications of GIS, GPS, and remote sensing.
- B. synthesize data from various sources and different formats for spatial analyses.
- C. apply spatial tools and techniques in a research or work environment.
- D. understand the fundamentals of geospatial technologies and how they function.

The geographic information systems (GIS)/global positioning system (GPS) program is designed to prepare students for entry into careers that employ generalized or specialized applications of GIS. GIS is a versatile and powerful technology that allows data input, data management, analysis and display of result within a single setup. Most local, state, and federal government agencies use GIS, as do businesses, planners, architects, foresters, geologists and a host of other occupations. Students learn technical and analytical skills for research as well as practical skills necessary to enter the job market and obtain positions with such titles as GIS technician, GIS specialist, GIS analyst, GIS programmer, GIS coordinator, GIS supervisor and GIS manager.

To earn a certificate of accomplishment, students must complete each course used to meet a certificate requirement with a "C" grade or higher. Required courses are available in the evening and during the day.

<i>required courses:</i>	<i>units</i>
GEOG-125 Introduction to Geographic Information Systems (GIS).....	3
GEOG-126 Advanced Geographic Information Systems.....	3
GEOG-129 Field Data Acquisition and Management	3

plus at least 3 units from:

ANTHR-126 Introduction to Archeological Field Methods	3
BIOSC-126 Ecology and Field Biology	4
BIOSC-170 Environmental Science	3
COMSC-120 SQL Programming	4
ENGTC-126 Computer Aided Design and Drafting - AutoCAD.....	3
GEOG-120 Physical Geography	3
GEOG-121 Physical Geography Laboratory	1
GEOG-124 Thinking and Communicating Geospatially....	3
GEOG-160 Introduction to Remote Sensing	4
GEOG-162 Map Design and Visualization.....	3
GEOG-295 Occupational Work Experience Education in GEOG	1-4
GEOG-298 Independent Study.....	0.5-3
GEOL-120 Physical Geology	3
GEOL-122 Physical Geology Laboratory	1

total minimum required units 12

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GEOG-120 Physical Geography

3 units SC

- 54 hours lecture per term
- Recommended: MATH-090 or MATH-090E or MATH-090SP or one year of high school algebra or equivalent

A general course to introduce the fundamental principles of physical geography. This course is intended to provide an intelligent understanding of the Earth as the home of human beings and to show the interrelationships found within the physical environment. Quantitative reasoning, development of mathematical concepts and problem solving are emphasized. C-ID GEOG 110, CSU, UC

GEOG-121 Physical Geography Laboratory

1 unit SC

- 54 hours laboratory per term
- Prerequisite: GEOG-120 or equivalent (may be taken concurrently)
- Note: Field trips may be included in the course

A laboratory course to supplement GEOG-120-Physical Geography. Emphasis will be placed on using the skills and tools of modern physical geography and analyzing and interpreting geographic data. Topics include maps, aerial photographs, satellite images, weather instruments and computer analysis. C-ID GEOG 111, CSU, UC

GEOG-124 Thinking and Communicating Geospatially

3 units SC

- 54 hours lecture per term

This course is a survey of geographic information technologies including GIS (Geographic Information Systems), GPS (Global Positioning System), RS (Remote Sensing), maps and cartography, mobile and online mapping and an overview of how these technologies are utilized by various agencies, industries, and disciplines for resource management, problem solving, and decision making. CSU, UC

GEOG-125 Introduction to Geographic Information Systems (GIS)

3 units SC

- 54 hours lecture/18 hours laboratory per term
- Recommended: COMSC-101 or equivalent

This course provides an introduction to Geographic Information Systems (GIS) as a tool for spatial analysis. GIS concepts, techniques and methodologies are covered and laboratory activities are used to reinforce lecture concepts. The course provides preparation for advanced university level courses in spatial analysis or for entry level positions in GIS-related fields. C-ID GEOG 155, CSU, UC

GEOG-126 Advanced Geographic Information Systems

3 units SC

- 54 hours lecture/18 hours laboratory per term
- Prerequisite: GEOG-125 or equivalent

This course is an application of advanced analytical techniques of geographic information systems (GIS) to manipulate, analyze and predict spatial patterns. Students will work on individual projects to learn the issues involved in managing and representing spatial information. CSU

GEOG-129 Field Data Acquisition and Management

3 units SC

- 54 hours lecture per term
- Recommended: GEOG-124 or equivalent

This course covers the fundamentals of the Global Navigation Satellite System (GNSS) using the Global Positioning System (GPS), for data acquisition, management, and integration of data with Geographic Information Systems (GIS). Students will learn to design, implement, manage a field project, and export the information to a compatible GIS platform for advanced analyses. CSU

GEOG-130 Cultural Geography

3 units SC

- 54 hours lecture per term
- Recommended: Eligibility for ENGL-122 or equivalent

This course examines the nature and causes of the spatial distribution of human activity. Phenomena such as population, language, religion, popular culture, agricultural practices, political structure, economic organization, settlement patterns, resource exploration, and technological innovation are examined in order to understand the interactive relationship between human beings and their environment. C-ID GEOG 120, CSU, UC

GEOG-135 World Regional Geography

3 units SC

- 54 hours lecture per term

This course is a geographic perspective of physical, cultural, political and economic characteristics of countries and regions of the world. Topics include a general survey of world place locations, influence of geographic factors on international cooperation and conflict, and a survey of the transformation of the cultural landscape of the United States. C-ID GEOG 125, CSU, UC

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GEOG-140 Introduction to Weather

- 3 units SC
- 54 hours lecture per term
- Recommended: MATH-090 or equivalent

This introductory course in meteorology is both a descriptive and analytical course on the physical principles affecting the earth's weather. Topics covered include the nature of the atmosphere, solar energy, heat, temperature, pressure, stability, moisture, wind, storms, severe weather and forecasting. Climatology as a scientific study and the Earth's climatic history are introduced. The course will examine current research in climate modeling and global climate change. C-ID GEOG 130, CSU, UC

GEOG-141 Introduction to Weather Laboratory

- 1 unit SC
- 54 hours laboratory per term
- Co-requisite: GEOG-140 or equivalent (may be taken previously)
- Recommended: MATH-090 or equivalent

This laboratory course is a supplement to GEOG-140. It includes coverage of fundamental concepts in meteorology and measurement techniques including selected mathematical concepts used to develop an understanding of weather and climate. Analysis of real-time weather data will be stressed. CSU, UC

GEOG-150 Topics in Geography

- .3-4 units LR
- Variable hours

A supplemental course in geography to provide a study of current concepts and problems in geography. Specific topics will be announced in the schedule of classes. CSU

GEOG-160 Introduction to Remote Sensing

- 3 units SC
- 36 hours lecture/54 hours laboratory per term
- Recommended: COMSC-101 or equivalent

This course introduces the basic principles of remote sensing techniques, including aerial photographs, satellite and LIDAR images. We teach techniques to collect data about the earth, how to interpret such data and how to map with the help of image processing software. CSU, UC

GEOG-162 Map Design and Visualization

- 3 units SC
- 36 hours lecture/54 hours laboratory per term
- Recommended: MATH-090 or MATH-090SP or MATH-090E or equivalent

This course introduces basic principles of mapping and representation of spatial data using conventional and computerized cartographic techniques and is designed to develop a better understanding of maps, map design, and map-interpretation. Elements of map such as scale, distance, direction, and map projections as well as cartographic techniques of data analysis, processing, visualization, and representation are examined in detail. CSU, UC

GEOG-295 Occupational Work Experience Education in GEOG

- 1-4 units SC
- May be repeated three times
- Variable hours
- Note: In order to enroll in GEOG-295, students must be employed, register for the course, complete an online Employment Form, and participate in an orientation. Employment Form can be accessed at www.dvc.edu/wrxx. Incomplete grades are not awarded for this course.

GEOG-295 is supervised employment that extends classroom learning to the job site and relates to the student's chosen field of study or area of career interest. Under the supervision of a college instructor, students will engage in on-the-job and other learning experiences that contribute to their employability skills and occupational or educational goals. Five hours work per week or seventy-five hours work per term is equal to one unit. Students may earn up to a maximum of sixteen units; repetition allowed per Title 5 Section 55253. CSU

GEOG-298 Independent Study

- .5-3 units SC
- Variable hours
- Note: Submission of acceptable educational contract to department and Instruction Office is required.

This course is designed for advanced students who wish to conduct additional research, a special project, or learning activities in a specific discipline/subject area and is not intended to replace an existing course. The student and instructor develop a written contract that includes objectives to be achieved, activities and procedures to accomplish the study project, and the means by which the supervising instructor may assess accomplishment. CSU

GEOG-299 Student Instructional Assistant

- .5-3 units SC
- Variable hours
- Note: Applications must be approved through the Instruction Office. Students must be supervised by a DVC instructor.

Students work as instructional assistants, lab assistants and research assistants in this department. The instructional assistants function as group discussion leaders, meet and assist students with problems and projects, or help instructors by setting up laboratory or demonstration apparatus. Students may not assist in course sections in which they are currently enrolled. CSU