GEOGRAPHY

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pcc.edu/programs/geography/

DESCRIPTION

Geography is more than just knowing the names of countries, cities, rivers, mountains, and other features of the Earth. It is the study of the spatial distribution and relationships of the Earth, its people and physical environment. Geographers analyze the relationship between humans and the environment; examine patterns and processes of place; and take a broad perspective to look at current topics such as climate change, global economics, urban diversity and development, immigration, origin and diffusion of disease, and natural resource use. The Geographic approach is applied at different scales, from local to global.

Geographers work with quantitative and qualitative data and use a variety of tools, such as Geographic Information Systems (GIS), Global Positioning Systems (GPS), Remote Sensing, and Unoccupied Aerial Systems (UAS) to ask and answer questions about our world. GIS and other spatial analysis tools allow geographers to explore the world in much greater detail, and to study and address complex issues.

GEOGRAPHIC INFORMATION SYSTEMS (GIS) AND GEOSPATIAL TECHNOLOGIES

GIS and Geospatial Technologies are some of the top emerging industries in the 21st century. It combines data, design, technology, and research to create maps and other visualizations that inform decision making and help us understand our world. PCC offers three Geospatial programs: GIS Certificate, Geospatial UAS (Unoccupied Aerial Systems or drones) Specialist Certificate, and Geomatics Associate's of Applied Science.

As modern-day Cartographers, GIS and Geospatial professionals view the world through a spatial lens, think analytically, are technology savvy, and communicate visually through maps. Geospatial tools can be used in predictive modeling of climate change, mapping community services, emergency response planning, and optimizing site selection for business expansion. These are tools that help build better communities.

A diverse range of geospatial skills are covered in our programs including cartography, UAS or drones, global positioning systems (GPS), interactive map design, cultural mapping, data visualization, remote sensing and imagery analysis, programming and automation, surveying, and Geospatial applications.

DEGREES AND CERTIFICATES OFFERED

ASSOCIATE OF APPLIED SCIENCE DEGREE

Geomatics

LESS THAN ONE-YEAR CERTIFICATE

Geographic Information Systems (GIS)
Geospatial UAS Specialist

Academic Prerequisites

- WR 115 or IRW 115 or equivalent placement.
- RD 115 or IRW 115 or equivalent placement.
- MTH 58 or MTH 60 or equivalent placement.

Academic Requirements

- None

Non-Academic Prerequisites

- None

Non-Academic Requirements

- None

GEOMATICS AAS DEGREE

Minimum 98 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. Math/computation competency is met through the math course(s) required in the program of study. Students should consult with program advisors for course planning.

GEOMATICS DEGREE COURSES

Code	Title	Credits
CCET 140	Introduction to Civil & Construction Drafting	3
or CADD 126	Introduction to AutoCAD	
CCET 210	Introduction to Surveying	4
CCET 220	Computer Applications for Surveying	3
CCET 230	Intermediate Surveying	4
CIS 125D	Database Application Development I	4
CIS 122	Introduction to Programming Logic	4
GEO 170	Maps and Geospatial Concepts *	4
or CCET 100 & CCET 110	Civil Engineering Construction Overview and Plan Reading	
GEO 223	GPS Theory and Design	4
GEO 240	Cartographic Principles and Applications	4
GEO 242	GIS Programming	5
GEO 244	Interactive Map Design	4
GEO 246	Remote Sensing and Image Analysis	4
GEO 248	Fundamentals of Drone Operations	4
or UAS 101 & UAS 102	UAS Pilot Test Prep and UAS Flight Operations	
GEO 252	Geospatial Modeling with Drones	4
GEO 254	Geospatial Modeling with Drones II	4
GEO 260	Boundary Surveys & Maps	4
GEO 265	Intro to GIS & Mapping Techniques	4
GEO 266	GIS Analysis	4
GEO 267	Geospatial Applications	4
or GEO 280A	CE: Geography	
GEO 270	Creating a Map Portfolio	1
MTH 111	Precalculus I: Functions (MTH111=MTH111Z) (or any mathematics course for which MTH 111 is a prerequisite) Z	4
MTH 112	Precalculus II: Trigonometry (MTH112=MTH112Z) (or any mathematics course for which MTH 112 is a prerequisite) Z	4
WR 121	Composition I (WR121=WR121Z) (or any writing course for which WR 121 is a prerequisite) Z	4
WR 227	Technical Writing (WR227=WR227Z) Z	4
General Education: 2 courses		
Total Credits		98

* Could be used as General Education
Z This course is part of Oregon Common Course Numbering. The following courses are equivalent:
MTH 111 and MTH 111Z
MTH 112 and MTH 112Z
WR 121 and WR 121Z

WR 227 and WR 227Z

LESS THAN ONE-YEAR CERTIFICATES

Geographic Information System (p. 2)s (GIS)
Geospatial UAS Specialist (p. 2)

GEOGRAPHIC INFORMATION SYSTEMS LESS THAN ONE-YEAR CERTIFICATE

Minimum 41 credits. Students must meet all certificate requirements.

Course of Study [1]

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term		Credits
GEO 170	Maps and Geospatial Concepts	4
GEO 265	Intro to GIS & Mapping Techniques	4
GIS Elective		4
Geography Elective		4
Second Term		
GEO 266	GIS Analysis	4
GIS Elective		8
Technical Elective		4
Third Term		
GEO 267 or GEO 280A	Geospatial Applications or CE: Geography	4
GEO 270	Creating a Map Portfolio	1
GIS Elective		4
	Total Credits	41

[1] Electives can be distributed throughout the year in a variety of ways, not just the way it is listed above. Students can start the GIS Certificate any term during the year although some GIS-specific classes have limited offerings. It is highly recommended that you talk to the GIS Certificate Program adviser to plan your coursework.

GEOGRAPHIC INFORMATION SYSTEMS CERTIFICATE GIS ELECTIVES

Code	Title	Credits
GEO 221	Mapping Cultural Landscapes	4
GEO 223	GPS Theory and Design	4
GEO 240	Cartographic Principles and Applications	4
GEO 242	GIS Programming	5
GEO 244	Interactive Map Design	4
GEO 246	Remote Sensing and Image Analysis	4
GEO 248	Fundamentals of Drone Operations	4
GEO 252	Geospatial Modeling with Drones	4
GEO 254	Geospatial Modeling with Drones II	4
GEO 280A	CE: Geography	4

GEOGRAPHIC INFORMATION SYSTEMS CERTIFICATE GEOGRAPHY ELECTIVES

Code	Title	Credits
GEO 105	Human Geography	4
GEO 106	World Regional Geography	4
GEO 110	The Natural Environment	4
GEO 202	Geography of Europe	4
GEO 204	Geography of Middle East	4
GEO 206	Geography of Oregon	4
GEO 209	Climate Change and Human Systems	4
GEO 212	Geography of Global Issues	4
GEO 215	Geography of Latin America	4
GEO 230	Geography of Race & Ethnicity	4
GEO 250	Geography of Africa	4
GEO 298	Independent Study: Geography	4

GEOGRAPHIC INFORMATION SYSTEMS CERTIFICATE TECHNICAL ELECTIVES

Code	Title	Credits
BA 169Z	Data Analysis Using Microsoft Excel (BA216A=BA 169Z) [Z]	4
CCET 140	Introduction to Civil & Construction Drafting	3
CADD 126	Introduction to AutoCAD	3
CIS 122	Introduction to Programming Logic	4
CIS 125D	Database Application Development I	4
CIS 133W	JavaScript for Web Developers	4
CIS 195H	HTML and CSS	4
CIS 275	Data Modeling and SQL Introduction	4
CIS 277A	Data Analytics	4
STAT 243Z	Elementary Statistics I (MTH/STAT243=STAT243Z) [Z]	4
WR 227Z	Technical Writing (WR227=WR227Z) [Z]	4

Z This course is part of Oregon Common Course Numbering. The following courses are equivalent:
BA 216A and BA 169Z
MTH 243, STAT 243, and STAT 243Z
WR 227 and WR 227Z

GEOSPATIAL UAS SPECIALIST LESS THAN ONE-YEAR CERTIFICATE

Minimum of 12 credits. Students must meet all certificate requirements.

Geospatial UAS Specialist Certificate Courses

Code	Title	Credits
GEO 248	Fundamentals of Drone Operations	4
or UAS 101 & UAS 102	UAS Pilot Test Prep and UAS Flight Operations	
GEO 252	Geospatial Modeling with Drones	4
GEO 254	Geospatial Modeling with Drones II	4
Total Credits		12