GEOSPATIAL INFORMATION SCIENCE GRADUATE CERTIFICATE

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Introduction

Geospatial Information Science (GIS), known to some as computer mapping, is used to store, manage, analyze, synthesize, and display spatial data and information. In the College of Architecture and Planning we use GIS to analyze and understand the spatial nature of data, to answer place-based questions posed by stakeholders and clients, and to create planning- and research-oriented maps and analyses that are critical to communicating with stakeholders. Our work with GIS in the college is built on the many advances in Geospatial Information Science over the last 40 years.

This certificate program is intended for individuals with an interest in the application of GIS to the design and planning professions. It is open to both currently enrolled students in a University of Colorado degree program who wish to add a credential to their degree, as well as working professionals who are not enrolled as degree-seeking students but who wish to pursue a certificate to improve job skills.

Students who earn this Certificate through the College of Architecture and Planning at the University of Colorado Denver will exit the program with the following:

- An understanding of GIS theory and concepts
- Technical mastery of general GIS methods using ArcGIS Pro and other GIS platforms as well as familiarity with remote sensing
- Familiarity with common public geospatial data sources, as well as metadata standards
- Knowledge of data interoperability, including how to move data and maps from one software platform to another
- Specialized skills in geospatial technologies and methods related to the design and planning professions, including rendering and visualizations, infrastructure and transportation network analysis,
- municipal cadastral mapping, LiDAR-based 3D city modeling, Census data mapping and analysis, process automation, site selection and analysis, geodesign, and many others

A minimum of a 3.0 GPA in all GIS related course work is required to earn the GIS Certificate, and for certificate credit a B- or better is required in all GIS certificate courses.

Eligibility, Application, and Tuition and Fee Information

The certificate program is open to all. Applicants already enrolled in a University of Colorado degree program need only submit an internal application to the CAP GIS certificate program. Applicants who are not currently enrolled in a degree program must apply to CU Denver as non-degree seeking students.

All interested program participants must complete one of the online application forms found on the CAP website (https://architectureandplanning.ucdenver.edu/academics/certificate-programs/#ac-admissions-2). Failure to submit an official application may result in the inability for CAP to officially award the certificate upon student completion.

Materials required for all applicants:

- A short statement of interest (250-500 words) explaining previous work and/or educational experience with GIS, and how this certificate will assist in current or future career or personal goals
- Unofficial transcripts (if not already admitted to CU Denver)

Find tuition and fee information in the Bursar's Office area of the university website (https://www.ucdenver.edu/tuition-cost/#:~:text=Non%2DResident%20Tuition%20%26%20Fees%3A,12%20credit%20hours%20each%20term).

Students interested in pursuing the GIS Certificate may start the conversation with the Program Coordinator, Austin Troy or the Program Academic Advisor, Roxy New

Course Requirements

The GIS Certificate is designed to supplement students' course work in their field of study and requires 18 credits to complete. Degree seeking students in the College of Architecture and Planning wishing to pursue the GIS Certificate may count 6 credits from their degree-based course of study towards the certificate, meaning that there are 12 additional semester hours of course work required to complete the certificate beyond the total credit hour amount for their degree.

Achieving the GIS certificate in your degree program requires you to follow the appropriate advising sheet.

- Master of Landscape Architecture - GIS Advising Sheet (https://architectureandplanning.ucdenver.edu/docs/librariesprovider18/student-services/gis-certificate_la_04-28-14.pdf?sfvrsn=30199ab8_2)
- Master of Urban and Regional Planning - GIS Advising Sheet (https://architectureandplanning.ucdenver.edu/docs/librariesprovider18/student-services/giscert_murpadvisingsheet_6_15_16.pdf?sfvrsn=9e1a9ab8_2)

Urban Regional Planning Track:

Code	Title	Hours
Part 1: Introductory GIS Class		
URPL 6250	GIS for Urban Planning	3
Part 2: Advanced GIS Methods Class		
URPL 6260	Advanced Geo-Spatial Methods	3
Part 3: Remote Sensing		
Select one of the following:		3
GEOG 5060	Remote Sensing I: Introduction to Environmental Remote Sensing	
GEOG 5070	Remote Sensing II: Advanced Remote Sensing	
Part 4: Specialized Advanced Classes		
Select 9 semester hours of the following:		9
GEOG 5050	Applied Spatial Statistics	

GEOG 5081	Cartography
GEOG 5085	GIS Applications for the Urban Environment
GEOG 5086	FOSS4G Systems Integration
GEOG 5090	Environmental Modeling with Geographic Information Systems
GEOG 5091	Open Source Software for Geospatial Applications
GEOG 5092	GIS Programming and Automation
GEOG 5095	Deploying GIS Functionality on the Web
GEOG 5230	Hazard Mitigation and Vulnerability Assessment
GEOG 5235	GIS Applications in the Health Sciences
CVEN 5382	Geospatial Data Development
CVEN 5385	GIS Relational Database Systems
CVEN 5390	Interactive Web Mapping GIS
Any course from the Part 3 list (either track) not already used to fulfill the Part 3 requirement	
Up to 3 semester hours from a studio course where intensive GIS is used.	
Up to 3 semester hours for an internship using GIS in a planning or design context, also by petition.	
Other relevant courses by permission	
Total Hours	**18**

Landscape Architecture Track:

Code	Title	Hours
Part 1: Introductory GIS Classes		
LDAR 5540	Introduction to GIS	3
GEOG 5081	Cartography	3
Part 2: Advanced GIS Methods Class		
URPL 6260	Advanced Geo-Spatial Methods	3
Part 3: Remote Sensing		
Select one of the following:		3
GEOG 5060	Remote Sensing I: Introduction to Environmental Remote Sensing	
GEOG 5070	Remote Sensing II: Advanced Remote Sensing	
Part 4: Specialized Advanced Classes		
LDAR 6840	Independent Study	3
Select 3 semester hours of the following:		3
GEOG 5050	Applied Spatial Statistics	
GEOG 5086	FOSS4G Systems Integration	
GEOG 5081	Cartography	
GEOG 5085	GIS Applications for the Urban Environment	
GEOG 5090	Environmental Modeling with Geographic Information Systems	
GEOG 5091	Open Source Software for Geospatial Applications	
GEOG 5092	GIS Programming and Automation	
GEOG 5095	Deploying GIS Functionality on the Web	
GEOG 5235	GIS Applications in the Health Sciences	
CVEN 5382	Geospatial Data Development	
CVEN 5385	GIS Relational Database Systems	
Any course from the Part 3 list (either track) not already used to fulfill the Part 3 requirement		
CVEN 5390	Interactive Web Mapping GIS	
Other relevant courses by permission		
Total Hours		**18**