GEOGRAPHIC INFORMATION SCIENCE AND TECHNOLOGY (PROFESSIONAL CERTIFICATE)

Award: Professional Certificate
Program of Study: Geographic Information Science and Technology
Program Code: 1770

The Physical and Environmental Sciences (PES) Department at Colorado Mesa University offers a certificate in Geographic Information Science and Technology. The courses are open to all students interested in broadening their knowledge and enhancing job-related skills in a rapidly expanding market of computer-based technology. The multidisciplinary nature of the geographic information science and technology allows students from a wide variety of fields to participate in this exciting program.

Geographic Information Science and Technology includes Geographic Information Systems, Global Positioning Systems, and Remote Sensing. A geographic information system (GIS) is a computer-based tool for mapping and analyzing geospatial data. GIS technology is a special case of information systems where the database consists of features, activities, or events that are definable in space as points, lines, or areas. GPS (Global Positioning System) is a satellite system that allows users to collect precise geographic data for use in mapping. Remote sensing refers to any technique whereby information about objects and the environment is obtained from a distance such as aircraft or satellites. The remote sensing often permits us to greatly expand our spectral view of the earth and "see" the world much more clearly than we can with the unaided eye.

Demand is strong for people who are trained in Geographic Information Science and Technology. This certificate will assist students in securing jobs in this rapidly growing field. GIS/GPS can be used for cartography, business, biology, geology, environmental science, history, archeology, and criminal justice.

For more information on what you can do with this major, visit Career Services' What to Do with a Major? resource.

Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select "Print Options." This will give you the options to either "Send Page to Printer" or "Download PDF of This Page." The "Download PDF of This Page" option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

Institutional Certificate Requirements

The following institutional requirements apply to all CMU Professional Certificates. Specific programs may have different requirements that must be met in addition to institutional requirements.

- Consists of 5-59 semester hours.
- Primarily 300-400 level courses.
- At least fifty percent of the credit hours must be taken at CMU.
- 2.00 cumulative GPA or higher in all courses taken to satisfy program requirements.
- A grade lower than "C" in the program of study will not be counted toward meeting the certificate's requirements.
- A course may only be used to fulfill one requirement for each degree/certificate.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Certificate Requirements.
- The Catalog Year determines which program sheet and certificate requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

Program Specific Certificate Requirements

(16-18 semester hours)

Code	Title	Semester Credit Hours
Select one of the following courses:		1-3
GIST 305	Cartography for GIS	
GEOG 131	Introduction to Cartography	
GIST 332 & 332L	Introduction to Geographic Information Systems and Introduction to Geographic Information Systems Laboratory	3
GIST 422 & 422L	GIS Data Management and Editing and GIS Data Management and Editing Laboratory	3
GIST 432 & 432L	Spatial Analysis and Modeling in GIS and Spatial Analysis and Modeling in GIS Laboratory	3
Select a minimum of six semester hours of the following:		6
CIVE 212	Introduction to Geomatics	
CSCI 110	Beginning Programming	
GEOG 341 & 341L	GIS for Social Scientists and GIS for Social Scientists Lab	
GIST 321 & 321L	Introduction to Remote Sensing and Introduction to Remote Sensing Laboratory	
GIST 375 & 375L	Global Positioning Systems for GIS and Global Positioning Systems for GIS Laboratory	
GEOL 470	Drone Explorations on Earth	
XXXX 395	Independent Study [1]	

XXXX 495	Independent Study [1]	
XXXX 497	Practicum [1]	
Total Semester Credit Hours		**16-18**

[1] Must have a GIS focus and be approved by the GIS program advisor.

Suggested Course Plan

First Year		
Fall Semester		**Semester Credit Hours**
GEOG 131 or GIST 305	Introduction to Cartography or Cartography for GIS	1-3
GIST 332 & 332L	Introduction to Geographic Information Systems and Introduction to Geographic Information Systems Laboratory [1]	3
	Semester Credit Hours	**4-6**
Spring Semester		
GIST 422 & 422L	GIS Data Management and Editing and GIS Data Management and Editing Laboratory	3
3 credit hours of any restricted elective		3
	Semester Credit Hours	**6**
Second Year		
Fall Semester		
GIST 432 & 432L	Spatial Analysis and Modeling in GIS and Spatial Analysis and Modeling in GIS Laboratory	3
Select 3 credit hours from the following restricted elective		3
CIVE 212	Introduction to Geomatics	
CSCI 110	Beginning Programming	
GIST 321	Introduction to Remote Sensing	
GIST 321L	Introduction to Remote Sensing Laboratory	
GIST 375	Global Positioning Systems for GIS	
GIST 375L	Global Positioning Systems for GIS Laboratory	
	Semester Credit Hours	**6**
	Total Semester Credit Hours	**16-18**

[1] Either GEOG 131 or GIST 305 can be prerequisite or co-requisite

Advising and Graduation

Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a certificate. Some courses are critical to complete in specific semesters while others may be moved around. Meeting with an academic advisor is essential in planning courses and discussing the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for their intended certificate.

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a certificate and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

Graduation Process

Students must complete the following in the first two months of the semester prior to completing their certificate requirements (for one-semester certificates, complete in the first week of class):

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found on the Graduation web page.

If a student's petition for graduation is denied, it will be their responsibility to apply for graduation in a subsequent semester. A student's "Intent to Graduate" does not automatically move to a later graduation date.