GEOGRAPHIC INFORMATION SYSTEMS - ASSOCIATE OF APPLIED SCIENCE (AAS)

Description

The Geographic Information Systems Associate of Applied Science is a career and technical education degree designed for students focused on workforce readiness to secure an entry-level position in the industry.

Geographic information systems (GIS) are designed to work with data referenced by spatial or geographic coordinates. GIS is a database with capabilities for spatially referenced data, a set of operations for working with and analyzing the data, and a cartographic system for designing maps.

Graduates work in natural resources, federal/state/local governments, planning, utilities, real estate, education, retail, businesses, banking, insurance, and web mapping. Careers typically include positions such as GIS technician, analyst, project manager, computer programmer, database administrator, systems administrator, cartographer, applications developer, and related managerial and administrative roles.

Program Learning Outcomes

Upon successful completion of the program, students will be able to:

1. Apply foundational theories of geospatial science to real-world industry applications.
2. Use industry-standard GIS software proficiently.
3. Explain geospatial ideas and outcomes to stakeholders, including non-professionals.
4. Create procedures for using GIS and modeling data.
5. Use cartographic design principles to communicate effectively with maps.

Entrance Requirements

Academic Entrance Requirements

Recommended:

- High school diploma or GED
- Completion of WR 065 Rhetoric and Critical Thinking II or minimum placement Wr/Comm Level 7
- MTH 060 Beginning Algebra or higher or minimum placement Math Level 10
- Completion of computer competency (either IC3 exam or CIS 120 Computer Concepts, which may be taken as part of program)

Other Entrance Requirements

All students enrolled in the Geographic Information Systems program (which includes requirements for co-operative work experience) may have to pass criminal history checks as a condition of their acceptance into a worksite. See the underlined program page or program director for more information.

Additional Program Costs (Beyond Standard Tuition/Fees and Textbooks)

Material Costs

Required:

- Materials (USB drive, maps, office supplies): $100

Recommended:

- A desktop or laptop computer capable of running GIS software*: approximately $1,200

*Most courses use GIS software that is compatible only with Microsoft Windows, and there is no MacOS version. Contact program instructor for specifics.

Course Requirements

Course	Title	Credits
Core Courses		
AV 271	Introduction to Unmanned Aerial Systems	4
GEOG 101	Introduction to Geospatial Science & GIS	4
GEOG 211	Cartography	4
GEOG 265	Geographic Information Systems	4
GEOG 266	ArcGIS	4
GEOG 267	Geodatabase Design	4
GEOG 273	Spatial Data Collection	4
GEOG 275	GIS Capstone	4
GEOG 280	Co-op Work Experience GIS	3
GEOG 284	GIS Customization	4
or CIS 122	Introduction to Programming	
GEOG 285	Data Conversion and Documentation	4
GEOG 286	Remote Sensing	4
GEOG 287	Spatial Analysis	4
GIS electives: Choose one of the following sequences:		6-12
AV 272 & AV 273	Unmanned Aerial Systems (UAS) Operations and Unmanned Aerial Sys Ops Maint	
CIS 120 & CIS 131 & CIS 125A1	Computer Concepts and Software Applications and AutoCAD 1	
FOR 230B & FOR 236	Forest Surveying and Aerial Photo	
Other Required Courses		
CIS 135DB	Database Theory/SQL	4
Discipline Studies courses		8
FOR 230A	Map, Compass and GPS	3
FOR 235	Resource Measurements	4
Choose one course from the following:		3-4
BA 178	Customer Service	
BA 285	Business Human Relations	
COMM 115	Introduction to Intercultural Communication	
COMM 218	Interpersonal Communication	
COMM 219	Small Group Communication	
Choose one course from the following:		4
MTH 102	Applied Technical Mathematics	
MTH 105	Math in Society	
Or one course from the foundational requirements math list		

WR 121	Academic Composition	4
WR 227	Technical Writing	4
Total Credits		**91-98**

Advising Notes

Most GIS courses are offered once per year beginning in Fall term. Students may take an introductory GIS course (e.g. GEOG 101 Introduction to Geospatial Science & GIS or GEOG 265 Geographic Information Systems) or non-program support and/or selected GIS courses if they begin Winter, Spring, or Summer term or if they need to build skills related to prerequisites. GIS courses are offered each term and must be taken together and sequentially. Students are recommended to avoid working more than 10 hours per week during any term due to heavy course load.

This degree is designed for students planning to enter their chosen career upon graduation. Often only selected credits are considered transferable to public or private baccalaureate institutions.

Performance Standards

- Academic Requirements:
  - Students must have a 2.0 cumulative GPA to earn a COCC certificate or degree.
  - All courses in the program must be completed with a grade of C or higher.

Sample Plan

First Year

Fall

		Credits
FOR 230A	Map, Compass and GPS	3
GEOG 101	Introduction to Geospatial Science & GIS	4
GEOG 265	Geographic Information Systems	4
GEOG 266	ArcGIS	4
Choose one course from the following:		4
MTH 102	Applied Technical Mathematics	
MTH 105	Math in Society	
Or one course from the foundational requirements math list		
	Credits	**19**

Winter

FOR 235	Resource Measurements	4
GEOG 211	Cartography	4
GIS elective		3-5
	Credits	**11-13**

Spring

CIS 135DB	Database Theory/SQL	4
GEOG 267	Geodatabase Design	4
GIS elective		3-5
WR 121	Academic Composition	4
	Credits	**15-17**

Summer

GEOG 280	Co-op Work Experience GIS	3
	Credits	**3**

Second Year

Fall

Discipline Studies Course		4
GEOG 273	Spatial Data Collection	4
WR 227	Technical Writing	4
AV 271	Introduction to Unmanned Aerial Systems	4
	Credits	**16**

Winter

GEOG 284 or CIS 122	GIS Customization or Introduction to Programming	4
GEOG 285	Data Conversion and Documentation	4
GEOG 287	Spatial Analysis	4
	Credits	**12**

Spring

Discipline Studies Course		4
GEOG 275	GIS Capstone	4
GEOG 286	Remote Sensing	4
Choose one course from the following:		3-4
BA 178	Customer Service	
BA 285	Business Human Relations	
COMM 115	Introduction to Intercultural Communication	
COMM 218	Interpersonal Communication	
COMM 219	Small Group Communication	
	Credits	**15-16**
	Total Credits	**91-96**