Moraine Valley Community College
Geographic Information Systems
What are Geographic Information Systems?

Geographic information systems (GIS) integrate computer software and hardware to collect, organize, analyze, and present geographically referenced data. Geographic information systems extend into many different fields and are prevalent in both local and federal government agencies, in the United States and abroad. The application of GIS can be found in areas as diverse as disease control, economics, marketing, environmental study, utility management, and crime control and prevention.

The United States Department of Labor has listed geospatial technology as a “High Growth Industry.” In addition, the Bureau of Labor Statistics has declared Geographic Information Systems Technicians and Geospatial Information Scientists/Technologists, a Bright Outlook occupation representing new and emerging occupations in high growth areas.

A 2012 study conducted by Global Industry Analysts Inc. declared, “Global Geographic Information Systems market is expected to witness significant growth driven by increasing adoption of the technology in industries such as oil and gas distribution, electric power, and other government sectors. Presently, GIS is used in wide range of applications including gas and oil exploration, identification of utility lines, and mapping and planning among others.”

Choose Moraine Valley and Save Money

Why pay more for the same education?

Moraine Valley’s mechanical design and mechatronics programs will save you thousands of dollars. Our tuition is considerably less than four-year universities or design schools. We also offer dual credit for selected career courses taken in high school. Financial aid and scholarships are available, including the Distinguished Scholar Award, which is offered to high school students who graduate in the top 10 percent of their graduating class. This award covers 100 percent of in-district tuition and fees.

Moraine Valley – Competitive Edge

Moraine Valley offers specialized certificates and a two-year Associate in Applied Science degree in Geographic Information Systems. The “stackable” certificates allow you to progressively add depth to your knowledge-base while expanding your design skill set, allowing you to seek entry-level employment in the industry more quickly as you pursue additional certificates and a degree.

The programs are offered in state-of-the-industry labs in the Center for Contemporary Technology on campus. The instructors have extensive experience in their respective fields, so what you’re learning in the classroom reflects skills you’ll need on the job.

The Geographic Information Systems A.A.S. degree program transfers to select four-year university programs. This allows you to take freshman- and sophomore-level classes at Moraine Valley while saving thousands of dollars on tuition, and then transfer to complete your technical Bachelor of Science degree at the university.

Job Titles/Occupations

“GIS” and “Geospatial” may be used interchangeably in job titles.

- Cartographer
- GIS Analyst
- GIS Consultant
- GIS Coordinator
- GIS Developer
- GIS Instructor

- GIS Manager
- GIS Planner
- GIS Professional
- GIS Programmer
- GIS Project Manager
- GIS Spatial Analyst

- GIS Specialist
- GIS Supervisor
- GIS Technician
- LiDAR Project Manager
- Mapping Analyst
- Mapping Specialist
### Geographic Information Systems

**Associate in Applied Science degree**

**62 credit hours**

*Curriculum Code 1377*

The GIS Associate in Applied Science degree program is intended for students who wish to gain a more thorough and diverse background in the GIS field, or wish to continue their education by transferring into a four-year bachelor’s degree program. Geographic information systems integrate computer software and hardware to collect, organize, analyze, and present geographically referenced data. GIS extend into many different fields and are prevalent in both local and federal government agencies, at home and abroad. The application of GIS can be found in areas as diverse as disease control, economics, marketing, environmental study, utility management, and crime control and prevention.

The GIS Associate in Applied Science degree program builds on the stackable GIS certificates and adds more technical courses in computer software and hardware management, computer-aided design, and database design and management. Graduates of this program pursue careers as surveyors, cartographers, photogrammetrists, and surveying and mapping technicians. Additional science and career electives will allow the student to tailor their degree to their specific interests. This career degree program is associated with the GIS Technician, GIS Specialist and GIS Professional certificates described on page 6.

**Required general education courses – 16 credit hours as follows:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM-101</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>COM-103</td>
<td>Speech Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>Seven credits from Math or Physical and Life Science:</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>BIO, CHM, EAS, GEL, MTH, NAT, PHYS, PHY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three credits from Social and Behavioral Science:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ANT, ECO, GEO, HIS, PSC, PSY, SOC, SSC or Fine Arts and Humanities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARB, ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE</td>
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<td></td>
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</tbody>
</table>

**Required career courses – 40 credits as follows:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS-101</td>
<td>Orientation to GIS Careers</td>
<td>1</td>
</tr>
<tr>
<td>GIS-110</td>
<td>Fundamentals of Geospatial Science</td>
<td>3</td>
</tr>
<tr>
<td>GIS-112</td>
<td>Introduction to Geospatial Technology</td>
<td>3</td>
</tr>
<tr>
<td>GIS-114</td>
<td>Data Acquisition &amp; Management</td>
<td>3</td>
</tr>
<tr>
<td>GIS-120</td>
<td>Spatial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GIS-122</td>
<td>Cartographic Design</td>
<td>3</td>
</tr>
<tr>
<td>GIS-124</td>
<td>Introduction to Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GIS-126 or GIS Capstone Project or GIS-128</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LAN-111</td>
<td>IT Essentials - A+</td>
<td>3</td>
</tr>
<tr>
<td>LAN-112</td>
<td>Managing IT - A+</td>
<td>3</td>
</tr>
<tr>
<td>MDT-145</td>
<td>Introduction to CAD</td>
<td>3</td>
</tr>
<tr>
<td>MIS-123</td>
<td>Database Design</td>
<td>3</td>
</tr>
<tr>
<td>MIS-210</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>MIS-292</td>
<td>SQL/Database Applications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Career Electives – Select six credits from the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO, BUS, CRJ, MDT, MIS, LAN, INS</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Suggested Full-Time Schedule**

#### First Semester

- COM-101 Composition I 3
- GIS-101 Orientation to GIS Careers 1
- GIS-110 Fundamentals of Geospatial Science 3
- GIS-112 Introduction to Geospatial Technology 3
- GIS-114 Data Acquisition & Management 3
- GIS-120 Spatial Analysis 3
- GIS-122 Cartographic Design 3
- GIS-124 Introduction to Remote Sensing 3
- GIS-126 or GIS Capstone Project 3
- MIS-120 Project Management 3
- MIS-209 SQL/Database Applications 3
- MTH-120 or General Education Mathematics or BUS-120 Business Mathematics 3

**Second Semester**

- GIS-120 Spatial Analysis 3
- GIS-122 Cartographic Design 3
- GIS-124 Introduction to Remote Sensing 3
- GIS-126 or GIS Capstone Project 3
- GIS-128 Internship in Geospatial Technology 3
- MIS-120 Project Management 3
- MIS-209 SQL/Database Applications 3
- BUS-120 Business Mathematics 3
- Life Science Elective (BIO, CHM, EAS, GEL, NAT, PHYS, PHY) 7

**Third Semester**

- LAN-111 IT Essentials - A+ 3
- LAN-112 Managing IT - A+ 3
- MDT-145 Introduction to CAD 3
- MIS-123 Database Design 3
- MIS-210 Project Management 3
- MIS-292 SQL/Database Applications 3
- Career Elective (GEO, BUS, CRJ, MDT, MIS, LAN, INS) 3
- Career Elective (GEO, BUS, CRJ, MDT, MIS, LAN, INS) 3

**Fourth Semester**

- MIS-210 Project Management 3
- MIS-292 SQL/Database Applications 3
- Career Elective (GEO, BUS, CRJ, MDT, MIS, LAN, INS) 3
- Career Elective (GEO, BUS, CRJ, MDT, MIS, LAN, INS) 3
GIS Professional
Certificate – 25 credit hours
Curriculum Code 1379
The GIS Professional certificate is the combination of the GIS Technician and GIS Specialist certificates. The GIS Professional certificate program is intended to provide students with the most thorough and extensive exploration of the GIS field, including technical and project-based GIS courses. Geographic information systems integrate computer software and hardware to collect, organize, analyze, and present geographically referenced data. GIS extend into many different fields and are prevalent in both local and federal government agencies, at home and abroad. The application of GIS can be found in areas as diverse as disease control, economics, marketing, environmental study, utility management, and crime control and prevention. Students graduating with the GIS Professional certificate will complete courses in geospatial technology and science fundamentals, data acquisition and presentation, and mapping and cartographic design, as well as a major GIS capstone project and an internship in the GIS field. Graduates of this program pursue careers as surveyors, cartographers, photogrammetrists, and surveying and mapping technicians.

GIS Technician
Certificate – 12 credit hours
Curriculum Code 1372
The GIS Technician certificate is the second in the series of stackable certificates, culminating in the GIS Professional certificate. This career pathway is designed to provide students with sufficient knowledge and skills to obtain employment in a GIS related profession. Graduates of this program are able to find employment in one of the many careers Geospatial career specializations. Geographic information systems integrate computer software and hardware to collect, organize, analyze, and present geographically referenced data. GIS extend into many different fields and are prevalent in both local and federal government agencies, at home and abroad. The application of GIS can be found in areas as diverse as disease control, economics, marketing, environmental study, utility management, and crime control and prevention. The GIS Specialist certificate builds on the knowledge and training introduced in the GIS Technician certificate, and adds considerable depth through courses in mapping, cartographic design and presentation, and remote sensing, as well as a GIS capstone project and an internship in the GIS field.

GIS Specialist
Certificate – 10 credit hours
Curriculum Code 1373
The GIS Specialist certificate is the third in the series of stackable certificates, culminating in the GIS Professional certificate. This career pathway is designed to provide students with sufficient knowledge and training in the GIS field to provide entry-level employment. Geographic information systems integrate computer software and hardware to collect, organize, analyze, and present geographically referenced data. GIS extend into many different fields and are prevalent in both local and federal government agencies, at home and abroad. The application of GIS can be found in areas as diverse as disease control, economics, marketing, environmental study, utility management, and crime control and prevention. Graduates of this program pursue careers as surveyors associates and surveying and mapping technicians. Students graduating with the GIS Specialist certificate will have a working knowledge of geospatial technology and science fundamentals, and GIS data acquisition and management.

To learn more about career opportunities for female graduates, we have the Corporate Mentoring Program, a unique mentoring relationship between a student and a professional that makes the transition from college into the work world smoother and less intimidating.

A Corporate Mentor can:
• Help you adjust to college life
• Give you helpful information about classes
• Provide you with support and help
• Share her collegiate and professional experiences

To find out more about how the Women in Technology Mentoring Program can help you, please visit our website at www.morainevalley.edu/cad/nsfmentors.htm

GIS-128 Internship in Geospatial Technology 3
GIS-124 Introduction to Geospatial Technology 3
GIS-114 Data Acquisition & Management 3

GIS-112 Introduction to Geospatial Technology 3
GIS-110 Fundamentals of Geospatial Science 3
GIS-114 Data Acquisition & Management 3
GIS-120 Spatial Analysis 3
GIS-122 Cartographic Design 3
GIS-126 or GIS Capstone Project or
GIS-128 Internship in Geospatial Technology 3
Learn more!

Academic Advising Center
(708) 974-5721

Chuck Bales
Program Coordinator
bales@morainevalley.edu
(708) 974-5401

morainevalley.edu

EEO
Moraine Valley Community College is committed to a policy of according no preference to persons on the basis of race, color, age, sex, religion, national or ethnic origin, disability, creed, ancestry, marital status, sexual orientation, arrest record, military status or unfavorable military discharge, citizenship status, or other legally protected characteristics or conduct in its educational programs, activities, or employment practices. Such discrimination is prohibited by Titles VI and VII of the Civil Rights Act, Title IX of the Educational Amendments, Sections 503 and 504 of the Rehabilitation Act of 1974, the Age Discrimination Acts of 1974 and 1975, and other federal and state statutes and regulations. This commitment applies in all areas to students and college personnel as well as to relevant aspects concerning the choice of contractors and suppliers of goods and services and to the use of college facilities. More specifically, in its employment practices, Moraine Valley Community College continually seeks to employ and promote the best qualified individuals while endorsing the principles of Affirmative Action as prescribed in the President's Executive Orders #11246 and #11375, as well as all federal and state laws regarding equal employment opportunity.

DOL Statement
This workforce solution was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy, continued availability or ownership.