Geography and Geographic Information Science

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Degree(s)  
Transfer:  
A.A.-T in Geography for Transfer 31869 AA.GEOG.OPTBAAT or 31869 AA.GEOG.OPTCAAT  
(using General Education Requirements Option B or C)

Non-Transfer:  
A.S. in Geographic Information Science 12443 AS.GEOG.GIS  
(with General Education Requirements Option A)

Certificate(s)  
Certificate in Geographic Information Science 22145 CT.GEOG.GIS

Employment Concentration Certificate(s)  
Engineering 99999 ECC.GIS.E  
Geographic Information Science 99999 ECC.GIS

Program Description  
The A.A.-T in Geography transfers to a four-year college and prepares students for a future in a field related to Geography. The Geographic Information Science (GIS) non-transfer Certificate and AS degree prepares students for GIS related careers which are enhanced by completion of a bachelor or graduate program. For students currently working within these fields there may be potential for salary and/or career advancement.

From local to global scales, geographers study political organization, transportation systems, marketing, economics, climate and weather, urban planning, land use development, globalization, and more. They examine distribution of land forms, study soils and vegetation, analyze limited resources such as water, and human impacts on the surface of the planet.
In general, geographers work in government research, public agencies, and are environmental consultants for nonprofit organizations.

Geographic Information Science (GIS) involves basic to advanced analysis and scientific research methods for identifying patterns, trends and relationships that are represented spatially and temporally on maps, large databases, reports and animations. Recent advancements make it possible to analyze, interact and produce maps using cloud technology. Students enrolled in our GIS courses online have the advantage of learning advanced communication and mapmaking skills that prepare them for a career in GIS, anywhere.

CAREER OPPORTUNITIES

All career opportunities listed are representative careers in each field. There are no guaranteed positions for students completing these programs. (See: www.onetonline.org)

Transfer A.A. Degree

Geography

For any BA/BS careers, please see your transfer institution.

Non-Transfer A.S. Degree

Geographic Information Science

- Geospatial Information Scientists and Technologists, Geographic Information Systems Technicians, Remote Sensing Scientists and Technologists, Remote Sensing Technicians, Precision Agriculture Technicians, Geodetic Surveyors, Surveyors, Surveying Technicians, Mapping Technicians, Cartographers and Photogrammetrists, and many discipline related fields with “GIS skills” as an occupational description

Certificate

Geographic Information Science

- Geospatial Information Scientists and Technologists, Geographic Information Systems Technicians, Remote Sensing Scientists and Technologists, Remote Sensing Technicians, Precision Agriculture Technicians, Geodetic Surveyors, Surveyors, Surveying Technicians, Mapping Technicians, Cartographers and Photogrammetrists, and many discipline related fields with “GIS skills” as an occupational description

Employment Concentrations

Engineering

- Engineering Technician, Surveying Technician, Mapping Technician, CAD Technician

Geographic Information Science

- Geospatial Information Scientists and Technologists, Geographic Information Systems Technicians, Remote Sensing Scientists and Technologists, Remote Sensing Technicians, Precision Agriculture Technicians, Geodetic Surveyors, Surveyors, Surveying Technicians, Mapping Technicians, Cartographers and Photogrammetrists, and many discipline related fields with “GIS skills” as an occupational description

Multimedia

- Multimedia Specialist, Multimedia Designer, Multimedia Producer

Programming

- GIS Programmer, Database Manager

Visual Design

- Computer Graphic Specialist, Cartographic Technician

TRANSFER PREPARATION

Geography

MSJC offers a range of course work to prepare students to transfer to four-year colleges and universities. All four-year institutions prescribe their own standards for course evaluation and admissions. Prospective transfer students are advised to research careers, degrees and majors in the Career/Transfer Center, access www.assist.org, review the MSJC catalog and meet with a counselor to expedite their transfer plan.

Geographic Information Science

MSJC offers a range of course work to prepare students to transfer to four-year colleges and universities. Courses that fulfill major requirements for an associate degree in this program might not be the same as those required for transfer into the major at a four-year university. All four-year institutions prescribe their own standards for course evaluation and admissions. Prospective transfer students are advised to research careers, degrees and majors in the Career/Transfer Center, access www.assist.org, review the MSJC catalog and meet with a counselor to expedite their transfer plan.

LEARNING OUTCOMES

- Explain the interrelationship between humans and the physical environment.
- Appreciate different cultural and ethnic perspectives within the context of environmental opportunities and challenges.
- Apply the scientific method to objective and subjective analysis of cultural and physical environments.
- Explore and critically appreciate spatial relationships at different scales from local, regional to global.
- Integrate spatial thinking with applied technology to analyze physical and cultural patterns, trends and relationships.

DEGREES

Transfer A.A.-T Degree

Geography

An Associate in Arts in Geography for Transfer will fulfill the requirements for students to transfer to a four-year college or university as a Geography major.

The major required for an A.A.-T in Geography for Transfer may be met by:

- Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University.
• The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements.
• A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.
• Obtainment of a minimum grade point average of 2.0. ADT also requires that students must earn a C or better in all courses required for the major or area of emphasis. A “P” (Pass) grade is acceptable if pass is defined as a grade of C or better.

### Elective Courses (minimum 6 units)

Elective courses are identified under the following concentration areas. Students must complete 6 units (any combination) under one concentration area to earn a Certificate in GIS. Once a Certificate in GIS has been earned, additional Certificates in GIS may be awarded for completion of 6 units in other concentration areas.

#### Employment Concentrations

**Engineering (6 units)**
- ENGR-157 Microstation I 3 units
- ENGR-164 Plane Surveying I 4 units
- ENGR-166 Legal Aspects of Surveying 3 units
- ENGR-167 Global Positioning Systems 4 units

**Geographic Information Science (6 units)**
- GEOG-081 Spatial Awareness 0.5 unit
- GEOG-082 Programming for GIS 3 units
- GEOG-083 Spatial Database Design and Management 3 units
- GEOG-084 Water Management with GIS 3 units
- GEOG-085 GIS for Catastrophes 3 units
- GEOG-086 GIS for Web Applications 3 units
- GEOG-088 GIS Client-Based Projects 3 units
- GEOG-149 Occupational Internship: Geographic Information Science 1-4 units
- GEOG-298 Various Topics in Geographic Information Science 0.5-3 units
- GEOG-299 Special Projects: Geographic Information Science 1-3 units

**Multimedia (6 units)**
- MUL-110 Introduction to Multimedia 3 units
- MUL-131 3D Animation 3 units
- MUL-299 Special Projects: Multimedia 1-3 units

**Programming (6 units)**
- CSIS-111B Fundamentals of Computer Programming 3 units
- CSIS-214 Principles of Database Management Systems 3 units

**Visual Design (6 units)**
- ART-120 2D Design 3 units
- ART-123 Graphic Design I 3 units
* Various Topics - See Geography and Geographic Information Systems course listings for specific topic offerings

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### A.A.-T in Geography for Transfer (18-21 units)

**Required Courses (6 units)**
- GEOG-101 Physical Geography 3 units
- GEOG-102 Cultural Geography 3 units

**List A: Select two to three (6-8 units)**
- GEOG-103 Field Studies in Geography 2-4 units
- GEOG-104 Physical Geography Lab 1 unit
- GEOG-105 Map Interpretation and Spatial Analysis 3 units
- GEOG-106 Introduction to Weather and Climate 3 units
- GEOG-108 World Regional Geography 3 units
- GEOG-111 Geography of California 3 units
- GEOG-115 Introduction to Geographic Information Science 3 units

**List B: Select two (6-7 units)**

Any course from List A not used above or one of the following courses:
- ANTH-102 Cultural Anthropology 3 units
- ANTH-102H Honors Cultural Anthropology 3 units
- GEOG-107 Urban Geography 3 units
- GEOL-100 Physical Geology 4 units

**Units for Major**
- 18-21 units

**CSU General Education or IGETC Pattern**
- 37-39 units

**Possible double counting**
- 10 units

**Transferable Electives (as needed to reach 60 CSU transferable units)**
- 10 units

**Total Units for A.A.-T Degree**
- 60 units

This Associate in Arts in Geography for Transfer degree is intended for students who plan to complete a bachelor’s degree in a similar major at a CSU campus. A student completing this degree is guaranteed admission to the CSU system, but not a particular campus or major. Students should meet with a counselor to develop an educational plan and receive university admission and transfer requirements.

### Non-Transfer Degree

**Geographic Information Science**

In addition to the 18 units of the certificate program in Geographic Information Science, students must also complete all MSJC General Education Option A requirements (a total of 60 units) for the Associate of Science degree in Geographic Information Science.

### Certificates

**Certificate in Geographic Information Science (18 units)**

**Required Courses (12 units)**
- GEOG-105 Map Interpretation and Spatial Analysis 3 units
- GEOG-115 Introduction to Geographic Information Science 3 units
- GEOG-120 Intermediate Geographic Information Science 3 units
- GEOG-125 Advanced Geographic Information Science 3 units

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Note: Every effort has been made to keep program information current. Please use this information as a guide and consult with the chair of the department/program or an MSJC counselor.