

GEOSPATIAL TECHNOLOGY TECHNICIAN



CERTIFICATE OF ACHIEVEMENT

CAREER/TECHNICAL (MAJOR CODE: A1772)

The following certificate track is designed for students seeking an entry-level position as a Geospatial Technology Technician. The program introduces both geospatial concepts and applications (including Geographic Information Systems (GIS), remote sensing, and image analysis). Special emphasis is on hands-on experience with the hardware, software, and techniques employed in science, industry, and academia. All of the core courses in this certificate track are short-track (8-weeks in length) and 100% online; the internship course (GEOG 153) will take place on campus or at a private or public entity.

Geospatial Technology integrates innovative tools and techniques that enables users to view and analyze temporal and spatial information in an exciting, dynamic, and productive fashion. Ultimately, geospatial technology (including GIS, remote sensing, and image analysis) helps one solve problems by looking at data in a way that is readily understood and easily shared. Today, a significant need exists within the workforce for personnel trained as Geospatial Technology Technicians. For further information visit <http://www.swccd.edu/~gis> or contact Professor Ken Yanow (kyanow@swccd.edu).

Program Student Learning Outcome Statement:

- Students will be able to communicate their understanding and analysis results by making maps, writing research papers and technical reports, and developing multimedia presentations. Specifically, they should be able to demonstrate the principles of cartography and the convention of map making.
- Students will develop capabilities and technical skills to apply scientific research methods (in both natural and social sciences) to observe, collect, and process geographic data; to perform analysis based on the knowledge, theories and principles in geography; and to draw quantitative and qualitative conclusions. Specifically, they should be able to demonstrate the following: The capability to observe, collect, and process geographic data with state of the art technology, including GIS, Remote Sensing, GPS, field data collection instruments, as well as obtaining data from document and literature.
- Students should be able to demonstrate the capability to perform data analysis based on critical thinking skills and use of technical and quantitative methods, including GIS, Remote Sensing, modeling software, and statistical methods.

GAINFUL EMPLOYMENT:

The U.S. Department of Education requires colleges to disclose a variety of information for any financial aid eligible program that “prepares students for gainful employment in a recognized occupation.”

Students who complete this program will have acquired the necessary analytical tools to successfully secure gainful employment in the field of study.

For more information regarding the data provided for this program and what it means to you as a student, please feel free to visit our SWC Gainful Employment website at: www.swccd.edu/gainfulemployment

GEOG 145	Introduction to Mapping and Geographic Information Systems (GIS)	3
GEOG 150	Exploring Our World—Maps and Geospatial Science	3
GEOG 152	GIS—Project Design and Applications	3
GEOG 154	Introduction to Remote Sensing (3) OR	3
PHS 154	Introduction to Remote Sensing (3)	3
GEOG 155	Introduction to Image Analysis (3) OR	3
PHS 155	Introduction to Image Analysis (3)	3
GEOG 153	GIS Internship	3
Total units		18

GEOLOGY

SCHOOL OF MATHEMATICS, SCIENCE, AND ENGINEERING

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DEAN: Michael Odu, Ph.D., Office 215A, 619-482-6344

FACULTY: Ken Yanow, M.S., M.A.

DEPARTMENT CHAIR: Jeff Veal, Ph.D.
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GENERAL DESCRIPTION

Geology is the study of the composition, structure, and evolution of the Earth. It is an interdisciplinary science that combines geological observations and concepts with those of biology, chemistry, physics, and mathematics. This department explores rocks, minerals, fossils, and geologic principles and the processes such as plate tectonics, continental drift, and rock forming that continue to shape the Earth and its environments. Specialization within the field of geology ranges from engineering and geophysics to paleontology and marine geology.

CAREER OPTIONS

Below is a sample of the career options available for the geology major. A few of these require an associate in science degree, most require a bachelor's degree, and some require a graduate-level degree: geologist, soils engineer, geological technician, earth science teacher, college instructor, geophysicist, park ranger, land use planner, geochemist, astrogeologist, marine geologist, glacial geologist, mining geologist, photogeologist, oil and gas geologist, mineralogist, paleontologist, volcanologist, and seismologist.



DEGREE/CERTIFICATE OPTIONS

MAJOR CODE

Associate in Science Degree: Transfer Preparation

Geology	01780
Geology for Transfer	01785

Consult with a counselor to develop a Student Education Plan (SEP), which lists the courses necessary to achieve your academic goal.

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The program below is undergoing modification and the modification will be placed into an addendum upon Chancellor's Office approval - see your counselor for further information and visit the college website under <http://www.swccd.edu/catalog> link for the latest addenda updates.

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ASSOCIATE IN SCIENCE DEGREE

GEOLOGY



ASSOCIATE IN SCIENCE DEGREE TRANSFER PREPARATION * (MAJOR CODE: 01780)

Designed for students who desire a general background in the field of geology in preparation for transfer to another college or university. Some of the courses listed below require the completion of prerequisites, and students should begin with the study of biology and mathematics.

Geology majors are advised to give first priority to lower-division requirements for the major as they are prerequisites for most upper-division courses. Only as many general education courses should be taken as can be included in the 70-unit transfer limitation, and these must be chosen with care to ensure that they fit into the general education pattern at the transfer school.

Program Student Learning Outcome Statement:

- Students will have basic knowledge and understanding of the content of modern geology. Specifically, they will be able to explain the nature of tectonic forces in the Earth's crust and their effects on most geological processes, understand and be able to explain geologic time and fossil record, and understand and be able to explain basic surficial processes and human interrelationships with Earth's surface.
- Students will acquire knowledge and demonstrate skills to collect and analyze Earth's minerals and rocks. Specifically, they will demonstrate the skills necessary to gather and interpret field and other types of geologic data, identify samples of basic mineral and rock material found on Earth's surface, understand and be able to explain the basic physical and chemical attributes of Earth's minerals and rocks, and explain how Earth's basic minerals and rocks form chemically and physically.

- Students will understand the philosophical, mathematical and physical science foundations of geology. Specifically, they will demonstrate a basic understanding of the physical science foundations of geology.

FIRST SEMESTER

BIOL 100	Principles of Biology	3
BIOL 101	Principles of Biology Laboratory	1
GEOL 100	Principles of Geology	3
GEOL 101	General Geology Laboratory	1
MATH 250	Analytic Geometry and Calculus I	5

SECOND SEMESTER

CHEM 200	General Chemistry I	5
MATH 251	Analytic Geometry and Calculus II	4
PHYS 270	Principles of Physics I	3
PHYS 271	Principles of Physics Laboratory I	1

THIRD SEMESTER

CHEM 210	General Chemistry II	5
MATH 252	Analytic Geometry and Calculus III	4
PHYS 272	Principles of Physics II	3
PHYS 273	Principles of Physics Laboratory II	1

FOURTH SEMESTER

MATH 130	Introduction to Computer Programming	4
PHYS 274	Principles of Physics III	3
PHYS 275	Principles of Physics Laboratory III	1

Total units **47**

To earn an associate degree, additional general education and graduation requirements must be completed. See page 64.

- * Students planning to transfer to a four-year college or university should complete courses specific to the transfer institution of choice. University requirements vary from institution to institution and are subject to change. Therefore, it is important to verify transfer major preparation and general education requirements through consultation with a counselor in either the Counseling Center or Transfer Center. See catalog TRANSFER COURSES INFORMATION section on page 45 for further information.

ASSOCIATE IN SCIENCE DEGREE

GEOLOGY FOR TRANSFER



STUDENT TRANSFER ACHIEVEMENT REFORM (STAR) ACT (SB1440)



Associate Degree
for Transfer
A Degree with a Guarantee.™

ASSOCIATE IN SCIENCE DEGREE TRANSFER PREPARATION * (MAJOR CODE: 01785)



Geology is the study of the composition, structure, and evolution of the Earth. It is an interdisciplinary science that combines geological observations and concepts with those of biology, chemistry, physics, and mathematics. This department explores rocks, minerals, fossils, and the internal and external geophysical processes that continue to shape the Earth and its environments. Specialization within the field of geology ranges from engineering and geophysics to paleontology and marine geology.

Program Student Learning Outcome Statement:

- Students will have basic knowledge and understanding of the content of modern geology. Specifically, they will be able to explain the nature of tectonic forces in the Earth's crust and their effects on most geological processes, understand and be able to explain geologic time and fossil record, and understand and be able to explain basic surficial processes and human interrelationships with Earth's surface.
- Students will acquire knowledge and demonstrate skills to collect and analyze Earth's minerals and rocks. Specifically, they will demonstrate the skills necessary to gather and interpret field and other types of geologic data, identify samples of basic mineral and rock material found on Earth's surface, understand and be able to explain the basic physical and chemical attributes of Earth's minerals and rocks, and explain how Earth's basic minerals and rocks form chemically and physically.
- Students will understand the philosophical, mathematical and physical science foundations of geology. Specifically, they will demonstrate a basic understanding of the physical science foundations of geology.

REQUIRED CORE: (27 UNITS)

GEOL 100	Principles of Geology	3
GEOL 101	General Geology Laboratory	1
GEOL 115	Dinosaurs and the Story of Earth	3
GEOL 115L	Dinosaurs and the Story of Earth Lab	1
CHEM 200	General Chemistry I	5
CHEM 210	General Chemistry II	5
MATH 250	Analytic Geometry and Calculus I	5
MATH 251	Analytic Geometry and Calculus II	4

Total units **27**

- * Students planning to transfer to a four-year college or university should complete courses specific to the transfer institution of choice. University requirements vary from institution to institution and are subject to change. Therefore, it is important to verify transfer major preparation and general education requirements through consultation with a counselor in either the Counseling Center or Transfer Center.

HISTORY

SCHOOL OF ARTS, COMMUNICATION, AND SOCIAL SCIENCES

ACTING DEAN: William Kinney, M.A., Office 702B, 619-482-6372

FACULTY: Victor Chavez, M.A.; Stanley James, M.A.; Laura Ryan, M.A.; Felix Tuyay, M.A.

DEPARTMENT CHAIR: Stanley James, M.A.

GENERAL DESCRIPTION

History is the study of all human experience. History examines the people, institutions, ideas, and events of the past and present. This department provides the basic information necessary for analyzing the major political, economic, and social conditions affecting contemporary society. Historians usually specialize in a chronological, geographical, and/or topical area that constitutes an academic field for inquiry and research, such as U.S. history, ancient Greece, Africa, medieval Europe, Mexico, Islam, China, Latin America, or women in history.

CAREER OPTIONS

Below is a sample of the career options available for the history major. A few of these require an associate in arts degree, most require a bachelor's degree, and some require a graduate-level degree: research assistant, high school or college instructor, foreign service officer, state park historian or technician, writer, historian, travel journalist, archivist, research analyst, museum curator or director, lawyer, banker, market researcher, business person, public administrator, and historical society personnel.

DEGREE/CERTIFICATE OPTIONS

MAJOR CODE

Associate in Arts Degree: Transfer Preparation

History	01790
History (SB1440)	01795

Consult with a counselor to develop a Student Education Plan (SEP), which lists the courses necessary to achieve your academic goal.

ASSOCIATE IN ARTS DEGREE

HISTORY

ASSOCIATE IN ARTS DEGREE

TRANSFER PREPARATION * (MAJOR CODE: 01790)

History is an academic department offering both breadth and focus. The study of history contributes to cultural literacy and develops critical thinking and other useful skills while helping students understand today and plan for tomorrow. Therefore, it provides a solid fundamental preparation for transfer as a history major or for a career in business, industry, government, or education.

