

# INFORMATION SCIENCES AND TECHNOLOGY FOR EARTH AND MINERAL SCIENCES, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

## Program Description

Information systems are a core component of any research, educational, or industrial enterprise in the Earth and materials sciences. In addition, the science and engineering disciplines represented in the college have a particular focus on numerical modeling and simulation systems, and on the analysis and management of very large data sets. The EMS - IST minor provides students a basic introduction to information sciences and information technology through courses in the core curriculum of the College of Information Sciences and Technology. Students then select from a group of interdisciplinary EMS courses that focus on the particular interests of the college.

## What is Information Sciences and Technology for Earth and Mineral Sciences?

The information age has transformed every aspect of our economy and society, creating the need for professionals that have the skills to apply information science to an ever-changing technological environment on both local and global scales. The Information Sciences and Technology for Earth and Mineral Sciences (EMS) minor, open only to EMS students, allows you to better understand information systems—which are a core component of any research, educational, or industrial enterprise in the Earth and mineral sciences—as they apply to EMS disciplines. Students take three introductory Information Sciences and Technology (IST) courses complemented by three computing-intensive courses from EMS departments. Prerequisites for the EMS courses are not included in the 18 credits required for the minor.

## You Might Like This Program If...

You wish to understand the cognitive, social, institutional, and global environments of information sciences and technology and apply that knowledge to computational and technological processes in your EMS major.

## Program Requirements

Requirement	Credits
Requirements for the Minor	18

## Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOG 463	Geospatial Information Management	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
GEOG 461W	Dynamic Cartographic Representation	
GEOG 464	Advanced Spatial Analysis	
GEOG 485	GIS Programming and Software Development	
MATSE 419	Computational Materials Science and Engineering	
METEO 473	Application of Computers to Meteorology	
METEO 474	Computer Methods of Meteorological Analysis and Forecasting	
PNG 430	Reservoir Modeling	

## Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

## University Park

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## Career Paths

Students earning the Information Sciences and Technology for Earth and Mineral Sciences minor learn a wide range of computational, research, and analytical skills that are highly valued by employers. Students earning this minor are very competitive for jobs in all levels of government, nonprofit organizations, and industry.

## Careers

Students earning the Information Sciences and Technology for Earth and Mineral Sciences minor are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): AccuWeather; BAE Systems; Boeing; Chevron; Esri; Federal Emergency

Management Agency; Hess; NASA; National Center for Atmospheric Research; National Oceanic and Atmospheric Administration; SAIC; U.S. Army Corps of Engineers; U.S. Census Bureau; U.S. Environmental Protection Agency; local, regional, and state agencies; environmental and engineering consulting firms; energy companies; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN INFORMATION SCIENCES AND TECHNOLOGY FOR EARTH AND MINERAL SCIENCES (<https://www.geog.psu.edu>)

## **Opportunities for Graduate Studies**

A minor in Information Sciences and Technology for Earth and Mineral Sciences is useful for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) atmospheric sciences, geosciences, engineering, geography, environmental sciences, geographic information sciences, information technology, environmental informatics, business administration, and supply chain management. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

## **Contact**

### **University Park**

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