

# GEOGRAPHIC INFORMATION SCIENCE, 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 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/students/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/>).

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>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of introductory GIScience:		3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	
	or GEOG 160 Mapping Our Changing World	
Select 6 credits of intermediate GIScience:		6
GEOG 361	Cartography--Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 365	Intermediate GIS Programming	
Select 6 credits of 400-level GIScience:		6
EMSC 460	Environmental Data Analytics	
FOR 455	Remote Sensing and Spatial Data Handling	
GEOG 413	Cryosphere and Climate Systems	
GEOG 462	Advanced Observation of Earth and Its Environment	
GEOG 463	Geospatial Information Management	
GEOG 464	Advanced Spatial Analysis	
GEOG 465	Advanced Geographic Information Systems Modeling	
GEOG 467	Applied Cartographic Design	
GEOG 485	GIS Programming and Software Development	
GEOSC 482	Satellite Remote-Sensing For Earth Observation	
METEO 477	Fundamentals of Remote Sensing Systems	
SOILS 450	Environmental Geographic Information Systems	
SRA 468	Spatial Analysis of Risks	
Select 3 additional credits of GIScience (not taken above):		3
EMSC 460	Environmental Data Analytics	
FOR 255	GPS and GIS Applications for Natural Resources Professionals	
FOR 455	Remote Sensing and Spatial Data Handling	
FORT 260	GIS for Natural Resources Management	

GEOG 265	Fundamentals of Geospatial Data Science
GEOG 361	Cartography--Maps and Map Construction
GEOG 362	Remote Sensing and Image Analysis
GEOG 363	Geographic Information Systems
GEOG 364	Spatial Analysis
GEOG 365	Intermediate GIS Programming
GEOG 413	Cryosphere and Climate Systems
GEOG 462	Advanced Observation of Earth and Its Environment
GEOG 463	Geospatial Information Management
GEOG 464	Advanced Spatial Analysis
GEOG 465	Advanced Geographic Information Systems Modeling
GEOG 467	Applied Cartographic Design
GEOG 485	GIS Programming and Software Development
GEOSC 482	Satellite Remote-Sensing For Earth Observation
METEO 477	Fundamentals of Remote Sensing Systems
SOILS 450	Environmental Geographic Information Systems
SRA 468	Spatial Analysis of Risks
WILDL 211	GIS and Aerial Photo Interpretation in Wildlife Management

### Prerequisites not included in Geographic Information Science Minor:

- (GEOG 260 or GEOG 160) and (GEOG 265 or ERM 300 or GEOG 161 or EME 210 or GEOSC 210 or METEO 273 or MATSE 219 or FOR 255 or FORT 260 or WILDL 211 or CMPSC 101 or CMPSC 121 or CMPSC 131 or IST 140): prerequisite for GEOG 361, GEOG 362, GEOG 363, GEOG 365
- (GEOG 365 or GEOG 485 or GEOG 489 or GEOSC 210 or GEOSC 444 or METEO 273 or EME 210 or MATSE 219 or CMPSC 101 or CMPSC 200 or CMPSC 201) and (MATH 110 or MATH 140 or MATH 140B or MATH 140E or MATH 140G or MATH 140H): prerequisite for EMSC 460
- GEOG 210 or EARTH 2 or EARTH 103N or EARTH 303 or METEO 101 or METEO 201: prerequisite for GEOG 413
- GEOG 361 or GEOG 362 or GEOG 363: prerequisite for GEOG 461
- GEOG 362 or FOR 455 or GEOSC 482 or METEO 477 or EE 477: prerequisite for GEOG 462
- GEOG 363: prerequisite for GEOG 463, GEOG 465, GEOG 485
- GEOG 364: prerequisite for GEOG 464
- GEOG 361: prerequisite for GEOG 467
- FOR 255 or FORT 260 or GEOG 160 or GEOG 260 or WILDL 211: prerequisite for FOR 455
- EE 330 or METEO 436: prerequisite for METEO 477
- SOILS 101: prerequisite for SOILS 450
- IST 210 and SRA 111: prerequisite for SRA 468
- GEOG 160 and GEOG 161: prerequisite for FORT 260
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