# Geospatial Analytics (Minor)

Students enrolled in this minor will learn to harness location-based data to solve pressing global challenges and tell stories through maps and visualizations relevant to a wide range of disciplines. Students can expect to learn how to employ Geographic Information Systems in combination with fundamental spatial data science principles in order to understand where things happen and why they happen where they do. This minor requires a minimum of 15 credit hours, consisting of a geospatial core, data science core, and spatial electives. Students are encouraged to declare the minor no later than first semester junior year. The minor is housed in the Center for Geospatial Analytics and is open to any undergraduate major.

**For more information about academics in the Center for Geospatial Analytics, visit cnr.ncsu.edu/geospatial (https://cnr.ncsu.edu/academics/).**

## Contact

Dr. Eric Money
919.513.0408
esmoney@ncsu.edu

Center of Geospatial Analytics
Jordan Hall 5108 | Campus Box 7106
North Carolina State University
2800 Faucette Dr.
Raleigh, NC 27695 USA

The Geospatial Analytics minor consists of a geospatial core of 9 credit hours that every student in the minor must take, in addition to a Data Science core, consisting of 3 1-credit Data Science and AI Academy courses of the student's choosing. A flexible spatial elective (of at least 3 credits) rounds out the minor requirements. Substitutions need the approval of the minor coordinator prior to taking the course.

**Special Course Notes:**

- Students should start taking courses for the minor by Sophomore/Junior year and students are encouraged to declare the minor no later than second semester Junior year.
- Courses in the minor are a mixture of online and in-person.
- GIS 205 Spatial Thinking with GIS and GIS 280 Introduction to GIS can potentially be taken in the same semester (when offered)
- GIS 280 Introduction to GIS is a prerequisite for the higher level GIS courses in the minor
- GIS 411 Coding for Geospatial Applications is a 2-credit 8-week course
- GIS 450 Geospatial Analytics in Practice is a 1-credit course and should typically be the final course taken to complete the minor; it can potentially be taken in the same semester as GIS 411 Coding for Geospatial Applications (when offered)
- Special topics courses cannot be counted towards the minor
- None of the 'geospatial core' courses can be taken as S/U
- Students may double-count minor courses with their major, GEP, or free elective requirements as determined by their academic advisor
- Only grades of C or better will earn credit towards the minor

## Plan Requirements

| Code | Title | Hours |
|---|---|---|
| **Geospatial Core (Required)** | | **9** |
| GIS 205 | Spatial Thinking with GIS | |
| GIS 280 | Introduction to GIS | |
| GIS 411 | Coding for Geospatial Applications | |
| GIS 450 | Geospatial Analytics in Practice | |
| **Data Science Core (Choose 3)*** | | **3** |
| DSA 201 | Introduction to R/Python for Data Science | |
| DSA 205 | Data Communication | |
| DSA 225 | Data Science for Social Good | |
| DSA 202 | Introduction to Data Visualization | |
| DSA 405 | Data Wrangling and Web Scraping | |
| DSA 406 | Exploratory Data Analysis for Big Data | |
| **Spatial Electives (Choose 1)*** | | **3** |
| ES 113 | Earth from Space | |
| SOC 220 | Cultural Geography | |
| PRT 240 | Geospatial Applications for Parks, Recreation, Tourism and Event Management | |
| NR 300 | Natural Resource Measurements | |
| GC 320 | 3D Spatial Relations | |
| BAE 325 | Introductory Geomatics | |
| ENG 342 | Literature of Space and Place | |
| FOR 353 | GIS and Remote Sensing for Environmental Analysis and Assessment | |
| GIS 414 | Geospatial Analytics for Environmental Change | |
| SSC 440 | Geographic Information Systems (GIS) in Soil Science and Agriculture | |
| CSC 442 | Introduction to Data Science | |
| GIS 499 | Undergraduate Research Experience in Geospatial Analytics | |
| **Total Hours** | | **15** |

* Course restrictions and pre-requisites still apply. Alternative data science and spatial electives can be used upon consultation and approval by the coordinator of the minor.