SCHOOL FOR
ENVIRONMENT & SUSTAINABILITY
UNIVERSITY OF MICHIGAN

GEOSPATIAL DATA SCIENCES MASTER OF SCIENCE

TO SOLVE WICKED ENVIRONMENTAL PROBLEMS, THE WORLD NEEDS PROFESSIONALS AND RESEARCHERS WHO CAN MANIPULATE AND ANALYZE COMPLEX ENVIRONMENTAL DATA.

The Geospatial Data Sciences (GDS) specialization prepares environmental professionals and researchers to develop and use analytical and computer-intensive data science methods to assess and steward the Earth's landscapes and natural resources to achieve a sustainable society. Students learn to apply geospatial data science and modeling principles and tools across diverse fields, including geography and land use, the social sciences, environmental justice, policy analysis, business, sustainable systems, terrestrial and aquatic ecosystem management, and coupled human-natural systems.

WHY GDS?

- Learn the theory and applications of advanced computational, analytical and environmental data science techniques so you can apply geographic information systems (GIS) and other tools in the environmental domain of your choice.
- Combine training in digital geospatial, statistical and modeling tools with the application of those tools to a wide range of issues across other specializations at SEAS and beyond.
- Develop a sophisticated understanding of satellite remote sensing, including physical principles, types of sensors, scene frequencies based on satellite orbits, methods of image analysis and classification, and applications of remote-sensing scenes and datasets to a wide range of environmental issues.
- Plan, design and execute GIS projects for natural resource management and become proficient in the use of digital mapping software.
- Develop modeling analyses, both data-driven statistical modeling and complex dynamic-systems modeling.

BOLD LEADERS

SAI CHERUVU (MS '25)

TRANSIT EXPERT, GOOGLE MAPS COGNIZANT

"I have had incredible mentors at SEAS, including my advisor, and have learned a lot about effective ways to frame my research projects and questions."

KYLE BARNES (MS '22)

GEOSPATIAL ANALYST 3 DEWBERRY

"My experience at SEAS was transformational, to give it one word. I don't think that I would have ever considered this field, or even known much about it, if I weren't exposed to it at SEAS. My undergraduate experience was more field-based, traditional ecology, giving me a solid but pigeonholed background. The interdisciplinary lens at SEAS exposed me to the technical side but also led me to understand how to use that experience for revealing environmental injustices. I get to do a lot of cool research and development that I wouldn't have the foundation for otherwise."

MASTER'S PROJECTS

Part of the culminating experience of your program is a master's project or master's thesis, where you will work with an external client to solve real-world problems. Recent projects include:

Supporting Tribal-Led Conservation and Connectivity in the Northern Great Plains Ecoregion: Geospatial and Policy Tools to Prioritize Lands for Restoration and Funding
Client: Buffalo Nations Grasslands Alliance

Photo credit: Gus Rytting, U-M SEAS

Mapping Resort Expansion and Ecosystem Impacts Using High-Resolution Satellite Imagery (Thesis)

U-M Natural Lands Assessment: Measuring What Matters
Clients: University of Michigan Office of Campus Sustainability and Facilities and Operations

COURSE SAMPLING

- Remote Sensing of Environment
- Environmental Spatial Data Analysis
- GIS and Natural Resource Applications
- Introductory Python for Geospatial Data Sciences I

WANT MORE INFO?

seas-admissions@umich.edu

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FACULTY

- Shannon Brines
- Neil Carter
- Silvia Cordero-Sancho
- Kim Diver
- Dimitrios Gounaridis
- Meha Jain
- Joshua Newell
- Derek Van Berkel
- Tiantian Yang
- Kai Zhu

BUILD A REWARDING CAREER WITH IMPACT

No matter your path, SEAS Career Services helps prepare you for a purpose-driven career that's right for you. Our career counselors provide guidance on all aspects of career development, from resumes and cover letters to job searches and interview preparation. Plus, we connect you with employers and alumni who can help you imagine the possibilities of where your degree will take you.

GDS graduates work as:

- Communications editors
- Development coordinators
- Education specialists
- Program managers

Here are just a few of the employers who hire GDS graduates:

DUCKS UNLIMITED
Michigan Tech
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