



ECOSYSTEM SCIENCE AND MANAGEMENT MASTER OF SCIENCE

BECAUSE ECOLOGICAL KNOWLEDGE IS THE FOUNDATION OF SOUND, SUSTAINABLE ENVIRONMENTAL POLICY, MANAGEMENT, CONSERVATION, EDUCATION, AND ADVOCACY.

How do natural ecosystems function, and what is the distribution of biodiversity across Earth's surface? How do humans impact ecosystems? How can we effectively address the concurrent crises of climate change, habitat loss and species extinction? In the Ecosystem Science and Management (ESM) specialization, you will explore these questions and learn about natural systems in both classroom and experiential field-based settings. You also will master the technical and quantitative skills necessary for their study, and learn how to apply them to solve complex environmental management problems, preparing you to become both a scientist and a successful sustainability practitioner.

WHY ESM?

- Study how different land uses—agriculture, urban, residential, forest, natural—affect ecological systems.
- Understand the biosphere's responses to human activities, such as climate shifts, land-use conversion, the release of pollutants and species introductions.
- Acquire the fundamental quantitative literacy to correctly evaluate and interpret ecological data.
- Study the effective use of GIS across multiple fields in conservation, including forestry, wildlife mapping, aquatic resources, ecosystem management and regional planning.
- Link the scientific understanding of ecosystems with the challenges inherent in sustainable management and of the societal benefits they support.
- Combine the principles of ecology and engineering to predict, design, construct or restore, and manage ecosystems.
- Identify and manage potential problems that could undermine key initiatives or projects, while building critical decision-making skills.

BOLD LEADERS

EMBER BRADBURY (MS '22)
PHD STUDENT (RANGELAND ECOLOGY)
COLORADO STATE UNIVERSITY

"Prior to SEAS, I didn't know that agroecology (sustainable farming that works with nature) even existed, but once I learned the word and the meaning behind it, I felt like it perfectly articulated what I wanted to work on all along. I am excited to apply the lessons I've learned through my excellent education to ecosystems that are foundational to my identity."



KIRK ACHARYA (MS '20)
RESEARCH FELLOW
ROCK MOUNTAIN NATIONAL PARK

"I chose SEAS first for its world-class interdisciplinary curriculum, and second for the warm, welcoming community. In the Ecosystem Science and Management specialization, I was able to build on my scientific understanding of global change, but the opportunity to relate these issues to policy and management has been invaluable."



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:

Food Availability and Its Influence on the Sustainability of Migratory Bird Populations on the Inspiration Ridge Preserve

(Homer, Alaska)

Client: Center for Alaskan Coastal Studies

Advisor: Allen Burton

Trails of History and Nature: Developing Ecological and Cultural Materials for an Ecotourism Hiking Network on the Aegean Island of Naxos

(Greece)
Client: Cyclades Preservation Fund; Hellenic Society for the Preservation of Nature; Municipality of Naxos and Small Cyclades

Advisors: Johannes Foufopoulos and Sheila Schueller



Accelerating Watershed Conservation Planning and Implementation in Michigan's Stony Creek-South Branch River Raisin Watershed: A Bottom-Up Approach to Reducing Phosphorus Loading into Lake Erie

(Dover Township, Lenawee County, Michigan)

Client: Michigan Department of Agriculture and Rural Development

Advisor: Mike Shriberg

COURSE SAMPLING

- Conservation Biology
- Soil Ecology
- Ecology of Fishes
- Forest Ecology and Management

WANT MORE INFO?

seas-admissions@umich.edu



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FACULTY

- Karen Alofs
- Jennifer Blesh
- Allen Burton
- Stella Cousins
- Gregory Dick
- Johannes Foufopoulos
- Casey Godwin
- Drew Gronewold
- Inés Ibáñez
- Silvia Newell
- Brian Weeks
- Donald Zak

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.

ESM graduates work as:

- Biologist
- Conservation worker
- Water quality specialist

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

