Environment, Economy, Development, and Sustainability (EEDS)

Faculty Mentors
Students will have a dedicated academic advisor and faculty mentor to guide them throughout their academic journey. Each role serves different functions and has different expertise. Faculty mentors are assigned after a student declares their specialization. You can find more information about individual faculty mentors throughout the rest of this document.

### Faculty Mentor

- Provides expertise in your areas of interest
- Helps with suggestions for specialization courses
- Gives guidance on course substitutions within the major
- Connects you to research opportunities
- Discusses opportunities that align with your career goals
- Guides you on planning related to graduate and/or professional school

### Academic Advisor

- Assists with class scheduling
- Helps with understanding degree requirements
- Evaluates transfer credit
- Oversees graduation-related information
- Provides assistance for academic difficulties
- Informs you about university resources
Dr. Elena Irwin serves as faculty director of the Sustainability Institute at Ohio State. Her research addresses the sustainability of human-natural systems at local and regional scales, with a focus on land use, ecosystem services and integrated models of land-water systems. She has been lead or co-lead on multiple research projects totaling over $16 million in funding from the National Science Foundation, NOAA, USDA and private foundations. Dr. Irwin was recently appointed to the EPA’s chartered Science Advisory Board (SAB) and as a member of the Agricultural Science Committee.

Areas of expertise

- Land Use Economics
- Urban-Rural Interactions
- Environmental Economics

Real-world questions my research can address:

- How do we think about, define and assess the sustainability of local and regional scales?
- How do different interventions (policy, technology, etc.) impact environmental and economic trade-offs?
- What factors matter the most for farmers when making land use or management decisions, and how do their decisions impact water quality?
- Where do people and industry choose to locate? How do amenities influence these decisions?

Selected highlights

- Serves as faculty director of the Sustainability Institute at Ohio State, providing leadership to interdisciplinary sustainability research and teaching across the university.
- Leads the NSF-funded DRFEWS project, that looks at how deglobalization will impact the food, energy and water systems in our regions, informing policy in times of change and uncertainty.
Dr. Cai is a computational and environmental economist, and core faculty at the Sustainability Institute at Ohio State. His current research focuses on using economic models to anticipate the impact of future climate change scenarios and tipping points; integration of regional food, energy, water systems and the economy; and computational methods in economics. He has published peer-reviewed papers in leading academic journals, and is a co-investigator on several research projects funded by the National Science Foundation and USDA-NIFA.

Areas of expertise

Climate Change Economics

Computational Economics

Modeling economic, food, energy and water systems

Real-world questions my research can address:

What are the impacts of climate tipping points? How can we address the climate tipping points?

What is the social cost of carbon (SCC)? How can we best estimate the SCC?

How can we mitigate carbon emissions while considering future climate and economic uncertainties?

What are the optimal policies for climate change and sustainable growth?

Selected highlights

Recipient of the 2021 Erik Kempe award in environmental and resource economics for his paper, The Social Cost of Carbon with Economic and Climate Risks.

Collaborator on ICICLE, an NSF-funded project building AI cyberinfrastructure to improve food-sheds, agriculture and animal ecology.
Dr. Sathya Gopalakrishnan is an environmental and resource economist and has been with AEDE since 2011. She is also on the faculty of the Environmental Science Graduate Program, is a founding member of the STEAM Factory at Ohio State and is a faculty fellow in the Office of Knowledge Enterprise. Dr. Gopalakrishnan’s research focuses on exploring interdependencies between economic decisions and dynamic biophysical processes that impact natural resources. She also teaches environmental and resource economics at the undergraduate and masters levels.

Areas of expertise

Valuing Environmental and Natural Resources

Sea Level Rise and Coastal Resilience

Feedback between natural and human systems

Questions that motivate my research:

What is the impact of climate-induced hazards on coastal communities?

How does water quality in the Lake Erie region impact recreational choices and where people choose to live?

How can communities sustainably manage natural resources across space and over time?

How do interdisciplinary collaborative networks impact informal learning?

Selected highlights

Co-founded the STEAM Factory in 2012. It has grown to include more than 220 members representing over 65 departments and focuses on interdisciplinary collaboration, innovation and dissemination of science.

Serves as principal investigator for the NSF-funded project, Convergent Learning From Divergent Perspectives, building a novel, multidisciplinary platform for informal learning that integrates arts and humanities with science and engineering.
Dr. Tim Haab’s research and teaching focuses are on environmental economics, consumer behavior and applied econometrics. His recent research has looked at the impacts of harmful algal blooms in Lake Erie, the impacts of the BP/Deepwater Horizon oil spill in the Gulf of Mexico and the impacts of marine debris on southern California beaches. Dr. Haab joined the department in 2000, and has served as the department chair since 2010. He was appointed Dean’s Chair for Transformative Initiatives and Director of the CFAES Knowledge Exchange (KX) in 2020.

Areas of expertise

Valuing Environmental and Natural Resources

Natural Resource Damage Assessment

Valuing Outdoor Recreation

Real-world questions my research can address:

? How do we value things that do not have prices (clean air, clean water, public green spaces, etc.)?

? What is the value of outdoor recreation? How does demand for it change over time?

? What are the economic damages from natural disasters?

? How do I analyze the data I have collected?

Selected highlights

Leads the Knowledge Exchange (KX), a university-community partnership for research integration, translation and communication.

Co-author/editor of the Environmental Economics’ blog, which has more than 3 million lifetime views.
An applied microeconomist, Dr. Daniela Miteva works on topics like promoting conservation and development in working lands (including voluntary supply-chain interventions), improving the effectiveness of protected areas, and modeling the role of institutions (e.g., the establishment of property rights, decentralization and devolution of natural resource management rights, community management) in sustainability. Previously, Dr. Miteva was a postdoctoral associate at The Nature Conservancy and a visiting researcher at the Institute on the Environment at the University of Minnesota.

Areas of expertise

- Environmental and Development Economics
- Valuing Ecosystem Services
- Policy Evaluation

Real-world questions my research can address:

- What are the mechanisms of landscape change? Where are landscapes changing? Why?
- How can we quantify and value ecosystem services?
- How can we quantify the impacts of policy interventions? Where do complementarities and trade-offs between the environmental and socio-economic goals of policies occur?
- How can we incentivize both conservation and development?

Selected highlights

Serves as core faculty at the Sustainability Institute at Ohio State, an organization dedicated to advancing sustainability and resilience scholarship and activities.

Co-leads the project, Evaluating the Impacts of Minnesota’s Agricultural Water Quality Certification Program (MAWQCP).
Brent Sohngen conducts research on the economics of climate change and land use, the design of incentive mechanisms for water and carbon trading and the valuation of ecosystem services. He developed a global land use model that is widely used to assess the implications of climate change on ecosystems and markets, and to assess the costs of carbon sequestration in land-based activities. He teaches “Introduction to Sustainability” and “Energy, the Environment and the Economy”.

**Areas of expertise**

- Climate Change
- Valuing Environmental Resources
- Water Quality

**Real-world questions my research can address:**

- How does climate change affect forest and agricultural ecosystems?
- How costly is it to avoid climate change?
- How effective and costly are carbon sequestration contracts? How do they affect landowners?
- How do we value ecosystem services, such as carbon, recreation and habitat?

**Selected highlights**

- Co-authored the report, "Economic Valuation of Natural Areas in Ohio," which estimates the value of outdoor recreation in Ohio.