Environment, Economy, Development, and

Faculty Mentors

THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Yongyang Cai

Associate Professor

CONTACT

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EDUCATION

🎓 PhD Computational and Mathematical Engineering
MS Financial Mathematics
Stanford University

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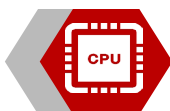
? What are the optimal policies for climate change and sustainable growth?

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.

Sathya **Gopalakrishnan**

Professor

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EDUCATION

PhD Environ. and Resource Econ.
Duke University

MS Agricultural Economics
Michigan State University

MA Economics
University of Hyderabad

B. Com
Brakatullah University

Dr. Sathya Gopalakrishnan is an environmental and resource economist. She joined AEDE in 2011. She is also on the faculty of the Environmental Science Graduate Program, and a founding member of the STEAM Factory at Ohio State. Her research focuses on applying economic theory to understand ubiquitous interdependencies between human decisions and geophysical processes in complex resource systems. She teaches environmental and resource economics at the undergraduate and graduate levels; and a PhD course in applied welfare economics.

Areas of expertise

Valuing Environmental and Natural Resources

Sea Level Rise and Coastal Resilience

Feedback between natural and human systems

Real-world questions my research can address:

? 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.

Tim **Haab**

Professor, Dean's Chair for Transformative Initiatives

CONTACT

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EDUCATION

PhD Ag. & Resource Econ.
University of Maryland-College Park

BA Economics
University of Maryland-Baltimore County

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 served as the chair of AEDE from 2010 to 2023. He was appointed Dean's Chair for Transformative Initiatives and Director of the CFAES Knowledge Exchange (KX) in 2020.
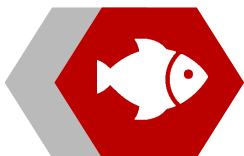
Areas of expertise

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.

Elena **Irwin**

Distinguished Professor

CONTACT

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EDUCATION

🎓 PhD Ag. & Resource Econ.
University of Maryland

BA German and History
Washington University

Dr. Elena Irwin is faculty director and co-founder of the <u>Sustainability Institute</u> and a Distinguished University Professor. Her research focuses on the economics of land use and development in urban, urbanizing and agricultural regions, including integrated spatial models of land, water and ecosystem services. She has led large interdisciplinary research efforts supported through funding from the <u>National Science Foundation</u>, <u>U.S. Department of Agriculture</u> and other private and public agencies. She is a Fellow of both the Association of Environmental and Resource Economists and the Agricultural and Applied Economics Association and serves as a member of the U.S. EPA's Scientific Advisory Board. In her role as faculty director of the Sustainability Institute, Elena advances sustainability education and interdisciplinary research across a diversity of topics and disciplines at Ohio State University.

Areas of expertise

Land Use Economics

Spatial Economics

Environmental Economics

Real-world questions my research can address:

? How do ecosystems and the services they provide influence the well-being of people and communities?

? How do different types of capital (natural, manufactured, human, social) contribute to the sustainability of a region?

? How can global and regional economic and environmental conditions influence agricultural land use change and water quality in the Great Lakes?

? How have patterns of urban sprawl changed over time in the U.S. and why?

Selected highlights

Serves as faculty director of the <u>Sustainability Institute</u> at Ohio State, providing leadership to interdisciplinary sustainability research and teaching across the university.

Leads the NSF-funded <u>DRFEWS</u> 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.

Daniela **Miteva**

Associate Professor

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EDUCATION

PhD Environment
Duke University
BA Economics
BA Biology
Bryn Mawr College

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 chancing? 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).

Brian **Roe**

Associate Chair
VanBuren Professor

CONTACT

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EDUCATION

PhD Ag. & Resource Economics
University of Maryland

BS Ag. Econ./Ag. Journalism
University of Wisconsin

D r. Brian E. Roe has worked broadly in the areas of agricultural and environmental economics focusing on issues including food waste, agricultural marketing, information policy, farm nutrient management, behavioral economics and product quality. He currently leads the Ohio State Food Waste Collaborative and is a member of the Foundation for Food and Agricultural Research Advisory Council on the Health-Agriculture Nexus. Roe was named a Fellow of the Agricultural and Applied Economics Association in 2022, and has previously served as the department's undergraduate faculty leader.

Areas of expertise

Food Waste

Farm Management

Nutrient Management

Real-world questions my research can address:

? How do people interpret certain food labeling claims such as "organic," "non-GMO," "eco-friendly," "low sugar," etc.?

? What are the benefits of standardizing food date labeling?

? How can we incentivize farmers to use the correct amount of nutrients to reduce runoff and impacts to water quality?

? How can we track and identify patterns in household food waste, and develop effective interventions that reduce food waste and support circular solutions?

Selected highlights

Co-principal investigator on The Multiscale RECIPES for Sustainable Food Systems, a $15 million NSF-funded project to reduce food waste.

Co-inventor of the FoodImage app, which permits researchers to gather detailed household data concerning food acquisition, consumption and waste from consenting research participants.

Brent Sohngen

Professor

CONTACT

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Dr. 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

Lead Author on Chapter 7 of the 2021 Working Group III Report of the Intergovernmental Panel on Climate Change.

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

Awarded Distinguished Professor of Food, Agricultural, and Environmental Sciences, in 2023

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