



2022 Sustainability Curriculum Innovation Grant Recipients

Future professionals will both affect and be affected by sustainability's global grand challenges, no matter their vocation. It is Colorado State University's ultimate goal that all graduating students understand and appreciate the complex and interconnected sustainability concepts that define our global future. These grants develop existing and new coursework that offer creative approaches to interdisciplinary sustainability content and elevate both the quality and quantity of student exposure to complex sustainability concepts. The grants also facilitate initial development of a sustainability curriculum toolkit for campus, which will provide a mechanism to share expertise and tools across colleges and courses. These Sustainability Curriculum Innovation Grants are created in partnership with CSU's [SoGES](#) and [President's Sustainability Commission \(PSC\)](#).

A Radical Library of Ceramic Materials

Del Harrow, Professor, Department of Art and Art History, College of Liberal Arts

Lynn Badia, Assistant Professor, Department of English, College of Liberal Arts



The clays, glazes, and other chemicals used in pottery-making have profound social-environmental-economic impacts that are often overlooked. The materials must be mined, refined, and may travel thousands of miles via complex global distribution networks. This project will help students directly engage concepts of sustainability through the specific origins of the materials they use every day. A series of short videos will

be created about each substance in the pottery materials lab, tracing their geologic origins and illuminating their sustainability impacts. Each video will be accessible by a QR code in the lab, and through a website housing additional research and information, resulting in an augmented and annotated materials library.

Circular Economics for the Built Environment

John Killingsworth, Assistant Professor, Department of Construction Management, College of Health and Human Sciences

Zachary Schaller, Assistant Professor, Department of Economics, College of Liberal Arts



The built environment (e.g., homes, commercial buildings, infrastructure) and the process of creating it consumes the most energy and produces the most waste of any other industry. The emerging discipline of Circular Economics can be a useful tool in tackling these sustainability impacts since it addresses systemic challenges such as climate change, waste, natural resource management, supply-chain management, and pollution.

This project will develop a new course at CSU, the first of its kind to feature Circular Economics as a guiding theme. Through a research-based teaching methodology, the new course, Circular Economics in the Built Environment, will provide students across disciplines with transformative training on sustainable systems for the built environment.

Development and Integration of Sustainability Concepts into Introductory-Level Geoscience

Sean Bryan, Senior Instructor, Department of Geosciences, Warner College of Natural Resources

Sean Gallen, Assistant Professor, Department of Geosciences, Warner College of Natural Resources

Michael Ronayne, Associate Professor, Department of Geosciences, Warner College of Natural Resources

Lisa Stright, Associate Professor, Department of Geosciences, Warner College of Natural Resources



The geosciences play a key role in many of the sustainability grand challenges faced by society. Mineral, water, and energy resources are under pressure, and communities are being

impacted by hazards from flooding, mass wasting (e.g. landslides) and sea level rise. This project will develop new teaching modules focused on these topics that more fully integrate sustainability concepts into geoscience content. These modules will incorporate the social, economic, and scientific aspects of geoscience topics and focus on the interconnections between them, which will empower students as future leaders in their disciplines. This project will develop teaching tools such as background readings, case studies, presentation slides, and activities, and will be designed with flexibility in mind to meet the goals of the instructor.

ECON240: Economics of Environmental Sustainability

Joanne Burgess Barbier, Associate Professor, Department of Economics, College of Liberal Arts



Economics can help us understand the relationship between the economy and environmental degradation and management. To enrich students' learning in this area, this project will update and refocus an existing course, ECON240: Issues in Environmental Economics, to increase focus on sustainability. The redefined course, ECON240: Economics of Environmental Sustainability, will thoroughly address sustainability, including initial concept (i.e., defining the systems approach and a capital approach to sustainability), how economics approaches the

underlying causes of environmental degradation, application towards environmental problems, and policy implications for sustainable economic development. The course will be designed for students with little or no background in economics and will explore complex interdisciplinary concepts related to environmental sustainability.

Finance for a Better World

Tianyang Wang, Associate Professor, Department of Finance and Real Estate, College of Business



Environmental, Social, and Governance (ESG) criteria are becoming important for investors, consumers, managers, and regulators. Increasingly, many institutional investors and other stakeholders strongly favor investment in companies that provide ESG performance reporting. However, due to the ESG framework's relatively new status in the mainstream, many businesses struggle to measure and report these metrics to key stakeholders. There is a strong need to prepare students to incorporate ESG thinking in their careers and help businesses carry out

ESG investing goals. This project will develop curriculum in finance courses that introduces students to new advances in the ESG framework and sustainability in the business world.

Global Product Flows: A Teaching Toolkit for Integrating Supply Chain Management and Sustainability

John Macdonald, Associate Professor, Department of Management, College of Business



The recent disruption of supply chains has highlighted not only the global nature of product flows in the 21st century, but also the need for resilient and sustainable supply chain management (SCM) solutions. The economic dimension of sustainability is inherently built into business curriculum. However, many environmental and social aspects of SCM are left unexplored or minimally covered, such as sustainable purchasing, product life cycle management, humanitarian logistics of refugees, illicit supply chains, (e.g., wildlife, labor trafficking) and more.

This project will create a suite of learning tools—lecture material, assignments, tests, cases—that reveal the systemic interconnections of sustainability concepts in SCM and how pulling one ‘lever’ affects other interdependent outcomes.

Sustainability-in-LIFE: Infusing Sustainability Principles and Science Into the Introductory Biology Curriculum at CSU

Tanya Dewey, Assistant Professor, Department of Biology, College of Natural Sciences

Lauren (Ren) García-Hellmuth, Professional Science Masters in Zoo, Aquarium, and Animal Shelter Management, College of Natural Sciences

Kim Hoke, Professor, Department of Biology, College of Natural Sciences



The Sustainability-in-LIFE project will create inquiry-driven laboratory activities that explicitly engage students around the science of sustainability in the context of basic biological principles for two of the highest enrollment natural science courses at CSU (LIFE 102 and 103). Ten labs will be revised to highlight the

relevance of sustainability in human life and in solutions to the current and future challenges faced by humanity. For example, revising the Photosynthesis lab to focus on algal blooms in aquatic systems and issues of carbon sequestration and cycling. The lab activities will be developed on the Canvas learning platform, making them readily available for re-use and exposing CSU’s large student audience to the interdisciplinary aspects of sustainability science.

For questions about the Sustainability Curriculum Innovation Grants, email Aleta.Weller@colostate.edu.



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