Masters of the Environment
University of Colorado **Boulder**

FALL 2025 COURSE DESCRIPTIONS:

New MENV course

The Water-Energy-Food Nexus (3cr)
ENVM 5084
Gregor MacGregor
This course examines the concept, principles, and application of the Water-Energy-Food Nexus and their implications for sustainable development. The course explores contemporary and historical issues related to each of the water, energy, and food sectors, their interconnections, and opportunities for positively reinforcing policy decisions based on a nexus approach. Students will learn how the nexus concept developed in conjunction with ideas around international development; explore emerging technological solutions to nexus issues; and analyze specific problems and case studies of the nexus drawn from local, national, and international levels.
001 (38464) – TTH, 11:30-12:45pm, SEEC N128

Product Lifestyle Assessment (3cr)
ENVM 5085
John Heckman
How can we objectively determine which products are more sustainable? How are product carbon footprints done? How can business decisions and marketing claims on such topics be made with confidence? LCA provides the basis for answering these questions, but it has limitations of its own that need be understood as well. Students will learn the theoretical underpinnings of LCA as well as their practical application through conducting an LCA of their own on a product of their choosing. At the end of the course students should be able to successfully complete the required exam for the ACLCA professional LCACP certification.
001 (34865) – TTH, 2:30-3:45pm, SEEC N125

MENV Internship
ENVM 6101
Alice Reznickova
This class provides a structure for MENV graduate students to receive academic credit for internships with industry partners that have a n academic component to them suitable for graduate-level work. participation in the pogrom will consist of an internship agreement between a student and an industry partner who will employ the student in a role that support the academic goals of the internship. Instructor participation will include facilitation of mid-term and final assessments of student performance as well as support for any academic-related issues that may arise during the internship period. ay be taken during any term of enrollment at MENV and repeated for up to 3 credit hours. Application required.
001 (18420) – TBA

Returning MENV courses

Environmental and Social Systems: Understanding , Mapping, and Stewardship (3cr)
ENVM 5002
Daniela Papi-Thornton & Jennifer Menke
Environmental and Social Systems: understanding, mapping, and stewardship. In this course you will learn about complex social and environmental systems, methods for how to map and understand them, and theories for how they change along with examples of global systems change contributions. This course will help you apply tools in systems-

understanding to address and steward problematic systemic structures, and the underlying mental models that drive them, to contribute to positive change.
001 (34801) – M, 5:45-8:15pm, SEEC N129

Sustainable Energy Policy (3cr)
ENVM 5006
Elizabeth Doris & Faith Smith
The global energy system is at the early stages of a remarkable transformation: from one largely dependent on fossil fuels (coal, oil, and natural gas) to one based on renewable and sustainable energy sources. Energy policy - actions taken by public entities to influence energy - have and will play an essential role in this ongoing transformation. This course takes a critical and pragmatic look at energy policy: what policies are available, how do we evaluate them, who are the stakeholders in the energy policy process, and how do policies drive energy technology adoption.
001 (34787) – T, 4:00-6:30pm, SEEC N125
Energy Systems and Technologies (3cr)
ENVM 5007
Joshua Radoff
Examines the basics of energy technologies and energy delivery systems. Covers both conventional energy sources (oil and gas, coal, nuclear and hydroelectric) and renewable/sustainable energy technologies (wind, solar, biomass, geothermal and end-use efficiency). Investigates individual technologies as well as integration of multiple technologies on energy systems such as the electricity grid and liquid and gas fuels infrastructures.
001 (34786) – TTH, 10:00-11:15am, SEEC N128

Water 2050 Resilience and Sustainability (3cr)
ENVM 5010
Paul Lander
Using the Colorado River Basin as our framework, we will journey through all of the elements of the water story. This basin, like many, is facing a dire future, primarily from the inability of humans to adapt to the realities of the physical world. The course will walk through the history of water in this region- culture, development, management- to begin to develop a frame for approaching a water future, one needing much greater resilience to indeed be sustainable.
Water 2050: Resilience & Sustainability Fall 2023 Notes:
Each student will learn the fundamentals of water science, law, policy, culture, economics, governance, and systems. As a group, the class will generate a body of work that provides an assessment of the basin, the key areas for system intervention, and possibilities for increasing resilience and sustainability.
001 (34862) – T 4:00-6:30pm, HY SEEC S125

Water, Climate, and Sustainable Cities (3cr)
ENVM 5012
Paul Lander
Provides students with the knowledge to characterize, analyze, assess and plan, urban systems, primarily those of water and landscape. Students will understand the nature of built systems in the urban environment, with particular focus on the urban water cycle and green infrastructure.
001 (34822) – M, 3:00-5:30pm, HY SEEC S125

Foundations of Environmental Policy and Management (3cr)
ENVM 5014
Gregor MacGregor
Examines concepts related to policy and regulatory processes, institutions, and management of the environment and natural resources. Surveys environmental issues and laws at the international, national, state and local levels. Focuses on policy tools including property rights, regulation, voluntary compliance, and market-based mechanisms. Students analyze a contemporary environmental or natural resources issue and prepare policy advocacy documents and presentations.
001 (34856) – TTH 8:30-9:45am, SEEC N128

Science, Politics, and Policy (3cr)
ENVM 5016
Jojo La & Tanya Petach
Examines the intersection of science with politics and policy, with an emphasis on how scientific information can be used to influence and support reasoned decision-making at all levels of government. The course will present the material through currently relevant and evolving topics such as climate change, species conservation and management, drought and other extreme climatic events, and topical issues as they arise during the course.
001 (34857) – T, 5:30-8:00pm, SEEC N126

The Scientific Basis of Environmental Change (3cr)
ENVM 5018
Meghan McCarroll
Provides an overview of the science that underlies some of the most complicated global environmental challenges we face today. These include topics such as climate change, air quality, land management, agriculture, biodiversity loss and conservation, as well as the underlying biogeochemical, hydrologic, and ecological processes that are critical for understanding the changing environment.
801 (34845) – M 10:00am-12:30pm, SEEC N128
802 (34846) – W 4:05-6:35pm, SEEC N125
803 (34847) – W 10:00am-12:30pm, SEEC N128
**Please note, all sections should be similar in size. No exceptions on capacity changes. Each section permits a capacity of 33. No waitlists available.*

GIS for Sustainability Professionals (3cr)
ENVM 5023
Jennifer Murdock
Geographic Information Systems (GIS) for Sustainability Professionals are increasingly important for understanding and managing environmental change and sustainability challenges. This introductory course in GIS will provide you with a broad foundation of spatial thinking and geo-technologies. We will consider what constitutes spatial data, learn about real-world applications of GIS within the field of sustainability, and will work through hands-on exercises in ArcGIS to build confidence utilizing such software in your future careers. This is a computer-based course, but no prior GIS experience is required.
001 (34863) – TTH 3:30-6:00pm, MCOL E186

Sustainable Land Use and Development (3cr)
ENVM 5026
William Shutkin
Survey of fundamentals of land use planning, growth management and urban/ community development systems, covering a range of cultural, legal and ecological issues. By way of case studies and best practices, focus on new, "sustainable" approaches at the intersection of real estate development, land use and urban planning, economic/community development and environmental policy.
001 (38238) – T, 2:30-5:00pm, AERO N250

Supply Chain Management for Food and Fiber (3cr)
ENVM 5028
Scott Donnel & Marc De Shutter
Provides students with an overview and in-depth, engaged analysis of food and fiber specific supply chain management. Using a mix of lecture, group projects, guest lectures students will learn supply chain fundamentals, the challenges facing supply chain managers and develop solutions.
001 (34858) – T 5:45-8:15pm, SEEC N128

Nourishing Humanity within Planetary Boundaries - Intro to Food Systems (3cr)
ENVM 5038
Damien Thompson

Take a holistic approach to exploring environmental, economic, social, and cultural dimensions of agri-food sustainability. Conceptualize food systems and their dynamics, recognize their achievements, come to terms with their role in environmental and social ills, and explore a range of promising alternative practices for rebalancing and building resilience in food systems.
001 (34828) – TTH 10:00-11:15am, SEEC S125

Sustainability & Resilience in Practice (3cr)
ENVM 5041
Jonathan Koehn & Susie (Leach) Strife
Explore sustainability strategies at the community scale and the drivers of decision making and investment in sustainability action. We will explore various approaches to sustainability with the goal of answering the question, "How do sustainability leaders engage with diverse stakeholders and decision makers to implement effective, equitable solutions to environmental problems?" We will select topics and case studies within Colorado that represent different kinds of challenges for sustainability planning and programs and evaluate solutions for each.
001 (27008) – T 9:00-11:00am, AERO 232

Benefit Cost Analysis (1cr)
ENVM 5043
Stephanie Shwiff
Analyze the environmental, economic, and international dimensions of a range of food production systems. Focuses on the economic benefit-cost analyses (BCA) that inform decision-making in food systems. BCA is a widely used economic valuation tool that involves estimating all benefits and costs in monetary terms and then adding and comparing those values and can help communicate the economic benefit of a proposed intervention.
001 (34829) – W 5:45-8:15pm, HY SEEC N129

Life Cycle Assessment - Bringing Objectivity into Subjective Conversations (1cr)
ENVM 5044
John Heckman
Use the food system landscape to provide an introduction to life cycle thinking, including a survey of industry standards, approaches and tools useful in better understanding and making decisions around sustainability.
001 (34830) – W 5:45-8:15pm, HY SEEC N129

Introduction to Monitoring & Evaluation (1cr)
ENVM 5045
James Harper
Gain an understanding of traditional and new approaches to monitoring and evaluation (M&E) in the context of food and water, sanitation and hygiene (WASH) systems in the developing world. Covers rigorous impact evaluation designs and when to use each.
001 (34844) – W 5:45-8:15pm, HY SEEC N129

Humans, Environment, and Justice (3cr)
ENVM 5051
Fatuma Emmad
This course will examine the justice implications of the relationship between humans and the natural environment and in particular land use. We will take as a premise that all people have the right to access clean water, air and soil and to be free of contamination and hazardous pollution. We will look at current struggles and debates around topics of environmental quality and the processes that deny people access to basic resources.
001 (34855) – TH, 3:30-6:00pm, ECCS 1B14

Data Science and Visualization (3cr)
ENVM 5055
Kassandra Neiss
Managing environmental change requires working with large complex datasets that vary in space, time, type, and

quality. Data visualization, or the visual representation of data using charts, graphs, and maps, is an essential communication tool that assists with quick interpretation of trends and outliers within environmental data. If not done well though, it can lead to misrepresentations, spurious correlations, and generally confusing visuals. In this course, students will identify, clean, understand, and analyze environmental data through Tableau. They will learn to combine visuals, weave data-forward narratives using tools like Dashboards and Data Stories, and utilize APIs to bridge Tableau to external applications and create automation. By the end of the course, students will be able to create meaningful graphics that have the power to influence sustainability decisions.
001 (38567) – W, 4:05-6:35pm, CLRE 104

Introduction to Sustainability in the Outdoor Industry (3cr)
ENVM 5064
Paul Dreyer
Providing an introduction to public lands and natural resources policy, challenges and opportunities for community economic development, and the outdoor recreation industry. Outdoor recreation economy definitions, theories and frameworks are discussed and critically examined. Key stakeholders are identified, along with current and future trends, opportunities, and challenges. The need for sustainable practices and cross-cultural understanding and communication within the outdoor recreation economy is also emphasized. Finally, we will explore the diverse career opportunities that exist within the outdoor recreation industry.
001 (34853) – M, 4:05-6:35pm, SEEC N124

Community Economic Development and the ORE (3cr)
ENVM 5065
Natalie Ooi
Introduces community economic development theories, frameworks, and processes, as relevant to the ORE. Best practices for building the ORE within all types of communities are discussed, highlighting the importance of equitable, community-focused, integrated, and sustainable destination development practices. Tying this all together is the importance of community economic development in building community capacity for the future.
001 (34854) – TTH, 1:00-2:15pm, SEEC S125

Consulting in Practice: Introduction to Individual and Group Consulting (3cr)
ENVM 5070
Maria McDonald
Learn the basics of consulting in this class. Great consultants are strategists and problem solvers. They know how to sort through complexity and uncertainty to assess the core issue that a client needs to address. In this class students will learn 101 skills such as: project definition, scoping, proposal writing, project management of deliverables, contracts, and relationship management.
001 (34859) – W, 3:35-6:05pm, LBB 143

Energy Markets, Transactions and Policy (3cr)
ENVM 5072
Robin Meidhof & Rob Witwer
The energy transition is one of the greatest industrial undertakings in human history. This course will focus on the legal and market aspects of that transition, the challenges they present, and the ways in which you can become more effective at navigating those challenges. For example, the U.S. has needed more transmission for more than a decade, yet transmission lines still take between 11-20 years to build. Why? Can the U.S. meet its aspirations to rapidly electrify and decarbonize our grid without “big transmission?” We will begin our inquiry by discussing the legal and constitutional underpinnings of federal, state and local powers, the creation of regional markets and regulatory decision-making bodies, and the history of utility regulation. We will evaluate how current regulatory structures, laws, and policies present hurdles and opportunities for the energy transition and we will dig deep into understanding how you can be a catalyst for change in improving the opportunities for utilities, renewable energy developers, and end-users (i.e., consumers) to engage with the markets and perhaps most important, engage with the regulators and policymakers who enact the legislation and policies that are driving the energy transition.
001 (34860) – W, 4:00-6:30pm, SEEC N125

Circular Economy and Sustainability (3cr)
ENVM 5077
Joel Hartter
Fundamentals of a circular economy, the business value in a circular economy, how business models are presently shifting, and why businesses should become part of this transformational shift. This course will also cover knowledge and skills needed to critique and improve sustainability outcomes for businesses and their stakeholders.
001 (34861) – W 4:05-6:35pm, SEEC N124

Capstone Innovation Lab 1 (1cr)
ENVM 6001
Alice Reznickova
Providing hands-on, learning-by-doing experiences, while also providing client organizations with solutions to complex problems and useful products. Projects can take place in-residence with a client, when appropriate. Project ideas will be codeveloped by students and industry, government, or non-profit partners and will be guided and evaluated by a committee of ENVS faculty. Required for all MENV students.
001 (34802) – F 9:00-10:00am, SEEC N128
002 (34803) – F 10:15-11:15am, SEEC N128
003 (34804) – F 11:30am-12:30pm, SEEC N128
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CIL 3 (1cr)
ENVM 6004
Meghan McCaroll
Providing hands-on, learning-by-doing experiences, while also providing client organizations with solutions to complex problems and useful products. Projects can take place in-residence with a client, when appropriate. Project ideas will be codeveloped by students and industry, government, or non-profit partners and will be guided and evaluated by a committee of ENVS faculty. Required for all MENV students.
001 (34805) – F 9:00-10:00am, AERO N250
002 (34806) – F 10:15-11:15, AERO N250
003 (34807) – F 11:30am-12:30pm, AERO N250
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Distributed Energy Resources (DERs) (3cr)
ENVM 6100
Nick Lennsen
This course will cover the applications of distributed energy resources with special emphasis on microgrids. The students will learn about three distinct types of microgrids; remote area power, islanded power, and grid-connected microgrids. It will also cover their value propositions of resilience, energy access, cost savings, and decarbonization and the technical and regulatory challenges that microgrids face. By the end of the course the students should be proficient in the use of the HOMER Pro software for optimizing the design of a microgrid. Evaluations will be based on class presentations and a final project.
001 (34815) – M, 4:05-6:35pm, SEEC N125

Stakeholder Engagement: PPP (3cr)
ENVM 6100
Kelly MacGregor
This course is organized around stakeholder engagement issues that are important to understand both within and across the MENV's 5 areas of specialization (environment and natural resources policy, renewable and sustainable energy, urban resilience and sustainability, sustainable food systems, and sustainability in the outdoor industry). Throughout the course, we examine **stakeholder processes, practices, and politics** and apply these to a variety of cases, issues, challenges, and opportunities. The course is divided into three units designed to educate students holistically on

stakeholder engagement. Unit One begins with “the big picture” of stakeholder engagement, examining how it is done in different contexts and cases. Unit Two focuses on techniques for and processes of engagement so that you will have a variety of “tools in your toolbox” to use as needed in different situations. Unit Three focuses on the perspectives of different communities that employ stakeholder engagement and also, in cases, serve as stakeholders themselves.
002 (34816) – W, 5:45-8:15pm, SEEC N128

Sustainability and Social Impact Reporting (3cr)
ENVM 6100
Jessica Kochik & Molly MacEachen
Private and public entities around the world are increasingly taking on sustainability as core value. Many are driven by genuine desire for positive change. Others do so out of perceived need from customers, stakeholders, or investors. As a result, the need to be able to use frameworks to develop strategies and communicate progress and impact has been paramount. This class will explore the frameworks and standards used to measure sustainability across different industry sectors, differentiate between “CSR" and “ESG,” and provide an investors perspective regarding which companies merit financial investment based on their sustainability performance. It will include a review of reporting standards such as GRI, CDP, GRESB, SASB, the process of conducting Materiality Assessments, and showcase how companies across the sustainability spectrum are developing enterprise-wide strategy and communicating their efforts.
003 (34817) – TH 4:00-6:30pm, SEEC S125

Climate and Energy Justice (3cr)
ENVM 6100
Jorge Figueroa Serrano
This course will explore the historical roots and current manifestations of environmental and climate injustice in Colorado and beyond. It will be grounded on practice: how to apply environmental and climate justice lenses and tools to address current urgent challenges & issues that cut across MENV’s 5 thematic tracks. Students will learn about the different roles and strategies that law, policy, equity and markets can play in addressing environmental and climate justice; and of the intersectionality of climate change mitigation and adaptation. Consistent application of analysis and strategies on real-world problems, and guest speakers from diverse backgrounds, fields and experiences will enrich and ground-truth this professional course.
005 (34819) – M, 5:45-8:15pm, SEEC N128