**2015 - 2016 MES Elective Course Descriptions**

*(Courses are offered on Monday or Wednesday nights, 6-10p. Please see* [*evergreen.edu/catalog/2015-16/mes*](http://www.evergreen.edu/catalog/2015-16/mes) *for complete information).*

**Fall 2015**

***Ecological Economics – Peter Dorman, MES Faculty***

Why does our economy create so many environmental problems?  How can we change the way it works to make it more sustainable?  Is putting an economic value on ecological services part of the problem, part of the solution—or both?  This program surveys various applications of economic analysis to ecological problems as well as the limitations to economic thinking revealed by ecology.  Topics to be addressed include the treatment of pollution as an externality, the use of renewable and nonrenewable natural resources, the valuation of ecological services, the response to environmental risk and uncertainty, and whether economic growth is compatible with ecological sustainability.

***Restoration Ecology – Sarah Hamman, Center for Natural Lands Management***

This course will explore both the objective and the subjective facets of restoration ecology, including various cultural perspectives on the value of restoration, how economic and political realities influence restoration targets, and the integrated structural and functional components of ecosystems that contribute to the success or failure of any restoration project. Students will have the opportunity to evaluate several large-scale restoration projects throughout the world and take part in active ecological restoration locally.

***Environmental Education – Jean MacGregor, The Evergreen State College***

It is widely agreed that an environmentally literate and concerned citizenry is crucial to environmental quality and long-term sustainability--but how and where is environmental and sustainability literacy fostered? And where "environmental education" occurs, is it effective?  This class explores the history, philosophical underpinnings, and current trends in environmental education for both youth and adults, in both formal sectors (schools and colleges) and non-formal ones. This class provides a theoretical and practical introduction to the field of environmental education and interpretation.  It will be useful to students interested in environmental teaching or communications as a career, or to those whose environmental work might involve education or outreach components.

***Conserving and Restoring Biodiversity – Timothy Quinn, Washington Department of Fish and Wildlife***

This course focuses on the biology that underlies conservation and restoration issues around the world. It will introduce you to the literature, controversies, and promising methodologies for a variety of conservation/restoration biology applications. In addition, I will invite a number of local experts to come and provide perspectives on their work in applied fields of conservation. We will read, discuss, and write on a variety of topics. Your assignments include written and oral exercises, and peer evaluations aimed at helping you develop your ideas and increase your ability to communicate those ideas. I want to introduce you to the principal concepts and methodologies of conservation and restoration biology, enrich your understanding of the scientific contributions necessary for solving conservation problems, foster your understanding of the scientific process in general and as applied in conservation settings, and further your powers of analysis and ability to communicate effectively.

***Advanced GIS – Mike Ruth, Environmental Systems Research Institute, Inc. (Esri)***

Advanced GIS is a fast-paced course designed to help graduate students build upon a previous foundation for using Geographic Information Systems (GIS) for mapping, spatial data management, and spatial data analysis. Instruction is based on reading assignments, lectures, and weekly hands-on labs using ArcGIS 10.1, including both desktop and online mapping tools for collaboration and presentation.

**Winter 2016**

***The Promises and Pitfalls of Clean Energy – Kathleen Saul, MES Faculty***

In a perfect world it would be easy to develop energy sources to replace fossil fuels that most people would describe as clean, renewable, and “good.” In reality, it’s not so simple. As one example, the U.S. Environmental Protection Agency considers hydropower to be a clean, renewable energy resource since it relies on the earth’s natural water cycle to generate electricity.  But large-scale hydroelectric dams have also earned a dubious reputation in the Pacific Northwest for their impact on salmon habitat and Native American fisheries. This elective will explore the many faces of clean/renewable energy.  It will begin with an overview of technologies such as solar, wind, nuclear, and hydropower that have been proposed as alternatives to fossil fuels. It will examine their benefits and disadvantages from a number of perspectives: technical, economic, environmental, political, social, and cultural. By the end of the course, students should better understand the complex nature of energy technologies and decisions regarding their use.

***Environmental Rhetoric and Communication – Kevin Francis, MES Director / Faculty***

Professionals in every environmental discipline must communicate with diverse audiences in clear and persuasive prose. In this course, we will study key examples of argumentative writing in the environmental movement and examine the rhetorical strategies that make them effective forms of communication. Students will also develop their own capacity to communicate with various audiences through assignments focusing on contemporary environmental issues.

***Water Management for Human and Environmental Systems – Paul Pickett, Washington Department of Ecology***

This class will explore how we manage water to meet the diverse needs of human societies and of the freshwater ecosystems that we value and rely on. Issue areas will include water supply, water quality, storm water and flooding, fisheries and endangered species, and watershed ecological functions. A key organizing principle of the class will be Integrated Water Resources Management, which is a tool for sustainable water management. In this course, we will review the science of water, and then explore how human communities interact with watersheds and the water environment. We will then examine our legal, economic, and social structures for water management to understand how social and environmental needs intersect. Coursework includes reading, instructor and guest lectures, class exercises, and student seminars. Students will also apply class concepts by researching individual case studies, which they will present in technical papers and class presentations.

***Tropical Ecology – Dina Roberts, MES Faculty; Richard Bigley, Washington Department of Natural Resources***

The complex issues of biodiversity conservation and forest protection align with the strong conservation ethic of Costa Ricans and yet globalization of agricultural crops has led to a push and pull between destruction and preservation of these diverse forests.  In this program, we will explore this contradiction through the lens of ecological, agricultural and cultural dimensions through a combination of four on-campus class periods and a two-week trip to Costa Rica to experience the ecology and culture firsthand. On-campus lectures and seminars will explore biogeographical and ecological explanations for species diversity, alternative hypotheses for high diversity tropical forests, and Costa Rica’s forward thinking ecosystem services program. A series of forest walks, lectures, and directed field studies will introduce students to organisms and ecological processes of lowland rainforest, pre-montane and cloud forest.

**Spring 2016**

***Wildlife Conservation and Policy – Mark Hayes, WA Fish and Wildlife; Amy Yahnke, WA Dept. of Ecology***

This elective will focus on the science and implementation behind conservation biology’s goals of slowing, stopping, and reversing wildlife population declines. Topics will include global, national, and state strategies to categorize, prioritize and protect threatened and endangered species from across the taxonomic spectrum.  Invited guest speakers will provide insight on the practical challenges of wildlife conservation. The program will explore the connections and disconnections between wildlife science and policy.  Readings from current nonfiction writings and peer-reviewed papers will review a wide range of conservation biology topics merging population ecology, genetics, conservation planning, and policy to explore a modern and interdisciplinary approach to protecting species, habitats, and ecosystem services.

***Introduction to GIS – Mike Ruth, Environmental Systems Research Institute, Inc. (Esri)***

This course will teach students how to use the versatile technology of Geographic Information Systems (GIS). GIS technology is increasingly used by physical and social scientists, policy makers, businesses, environmental and conservation organizations, utilities, public health providers, the military, and educators, to name a few. Instruction will rely strongly on weekly hands-on labs and homework exercises to guide students through a public policy decision process from beginning to end over the duration of the quarter.  Students will learn to manage spatial data and tools, mainly using the Esri suite of software commonly known as ArcGIS. No previous experience with GIS is required.  Student versions of the ArcGIS software suite will be made available for home use (but technical support is limited to college computers).

***Research Design and Qualitative Methods – Shangrila Wynn, MES Faculty***

This program is designed to prepare students to develop and implement qualitative research projects in the environmental social sciences. The class will begin with an exploration of theoretical perspectives crucial to understanding and conducting such research, including topics such as epistemology, research ethics, cross-cultural power dynamics and reflexivity. A range of qualitative research methods will be surveyed and practiced, including interviews, participant observation, narrative storytelling and focus groups. Students will develop and implement a qualitative research project of appropriate scope utilizing appropriate research methods.

**Summer 2016
*Political Ecology – Shangrila Wynn, MES Faculty***This course will enable students to engage more closely with political ecology than they are able to do in core courses. Political ecology is a vibrant sub-discipline of the discipline of Human Geography, as well as an interdisciplinary approach to studying nature-society interactions that has attracted the attention of social scientists. We will develop a strong understanding of various theoretical contributions of political ecology to the study of nature-society relations, and we will challenge ourselves to apply to the political ecology approach to contribute to socially just and ecologically sound policy.

***The Value of Natural Capital – Scott Morgan, TESC Sustainability Director; Lola Flores, Earth Economics*** This course will focus on using Ecosystem Service Valuation (ESV) to inform decision makers of alternative approaches to the multiple pressing and widespread environmental issues. The class is a facilitated learning experience using a local, applied case study to learn the theory, methodologies, and practice of ecosystems services and accounting for natural capital along with their applications in public policy. The students will apply lessons learned in class by scoping and building the foundations of a complete economic assessment.