

MES Fall Quarter 2009

First-year core: *Political Economic and Ecological Processes* – Frederica Bowcutt & Martha Henderson
Tuesdays & Thursdays 6-10 pm

Focus: This program provides a framework for understanding current Pacific Northwest environmental issues from an interdisciplinary perspective. Students will begin to develop the skills to become producers of new knowledge, rather than being strictly consumers of preexisting information. Multiple methods of data acquisition and analysis will be introduced through examples drawn from many different disciplines. Students will study the relationship between economic and political systems with regard to the environment within the Pacific Northwest region. Students will also study the region's natural history and explore the relationship between science and policy with a special focus on environmental history and ecological restoration. Field trips will provide opportunities to visit local ecosystems.

Second-year core: *Case Studies and Thesis Research Design* – Ralph Murphy & John Perkins
Tuesdays & Thursdays 6-10 pm

Students will examine selected research projects on a variety of environmental problems. The aim is to understand how research is conceived, planned, and executed. This program will draw upon the skills gained in the first year of MES core studies. Students will work to apply their knowledge and skills to the design of their individual thesis research plans. At the end, each student will have a polished draft of their Thesis Prospectus, ready for refinement in consultation with the student's thesis advisor.

Electives:

The Ecology of Harmful Algal Blooms – Gerardo Chin-Leo

Wednesdays 6-10 pm, possibly one Saturday field trip

Focus: Microalgae account for most of the plant biomass and production in aquatic systems. Recently, coastal waters worldwide have experienced an apparent increase in the occurrence of large concentrations (blooms) of harmful algal species. Blooms of toxic algal species (e.g. red tides) can cause direct mortality of fish and shellfish. Other organisms, including humans, can be indirectly affected through the consumption of contaminated seafood. Large blooms of non-toxic species can also have negative impacts on aquatic habitats by shading benthic plants and by interfering with the activities of other organisms. Furthermore, if these algal blooms are not grazed or diluted, their decomposition can deplete the dissolved oxygen in the water causing the mortality of plants and animals. This program will study the taxonomy and ecology of harmful algal species, the environmental factors controlling the abundance and productivity of aquatic algae, and the possible role of human activities in causing the increase of harmful algal blooms. In addition, we will examine the efforts to monitor harmful algal blooms, and to control their impact on fisheries and public health.

Behavior and Ecology of Pacific Salmon – Larry Dominguez

First 3 Mondays 6-10 pm, then Saturdays 9-5

Focus: This technical and field-based course is designed for students who want to receive understanding of how the Pacific salmon is woven into the fabric of Pacific Northwest and Northeast Pacific Ocean ecosystems. Students of varying technical backgrounds can benefit whether your interests are policy or scientific or just want to develop an intimate understanding of the salmon's life history, behavior, habitat use and influences on their success and their current fight to survive amidst increasing societal pressures. This class will cover the life histories of seven Pacific salmon species with special emphasis on fall spawning species chum, sockeye, pink, coho and chinook. Discussion will focus on spawning and winter rearing habitats, and effective winter habitat restoration. This class will be taught in lectures and predominantly on field trips in coastal, Puget Sound, and West Cascade streams.

GIS and Spatial Analysis – Peter Impara

Wednesdays 6-10 pm

Focus: This is an introductory course to GIS. We will focus on the structure of and analysis of spatial data, using GIS as a tool to conduct spatial analysis. Students will learn the basics behind GIS through lecture and labs. The class will be primarily hands on, with a lab every week, on-line course work, and a final spatial analysis project. Student will be given a reduced version copy of ArcGIS to carry out work at home, and time will be available in the CAL for class and group work. Students will work in groups for the spatial analysis project, and it will entail accessing and analyzing spatial data at an advanced level, and presenting findings to the class. Students should be capable in Windows file management.