ENVIR215: Earth, Air, Water: The Human Context

Syllabus

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Class Meeting Times and Location:
Lectures TTh 9:30-10:20 Ocean Teaching Building 205
Lab AA TTh 10:30-12:20 Ocean Teaching Building 206
Lab AB TTh 1:30-3:20 Ocean Teaching Building 206

Class Web Site
http://www.ocean.washington.edu/courses/envir215

Key Dates
Quizzes in the lecture period on April 19, May 10 and May 31
Unit Essays due in the lecture period on April 21, May 12 and June 2

Course Description
This is unique lecture/lab class that combines hands-on experiments in the laboratory with ideas about the structure of our environment. The class examines the way our physical environment works and works with and against us. The context is a survey of 20th Century environmental change: air, water, earth and their inhabitants. Aimed at non-science majors, the format allows you to experience classical science "taken outdoors." This course will broaden your perspective on environmental issues and help you make informed choices as an active member of society. The course will utilize lab experiments, lectures, reading, discussions and presentations, and will be divided into three primary units: Energy, Air & Water, and Earth. During these units we will cover additional topics such as transportation, food supplies, pollution, climate, land surface processes, natural hazards, global sustainability and others.

During lab periods there will be a group of open-ended non-cookbook experiments for each topic. You will work with a partner carrying out about 6 distinct experiments during the term; meanwhile you will see what other 'teams' are doing with their experiments (which will differ from yours) and you will present your experiment to the rest of the
section. We will also work together on projects to build solar-powered cookers and to conduct simple plant growing experiments. Lecture periods will develop the 'science core' that underlies the lab, and both formal lectures and discussions will be used to extend into ideas of the Earth system that are relevant to public policy. Each unit will include background readings that will provide historical context and contrasting opinions. Each of the three units will also have an essay project that will require research outside of the text. There will be quizzes at the end of each of the three units.

Course Objectives
• Familiarize yourself with environmental issues from scientific and historical points of view, stressing the changes seen in the past century and the impacts of environment and natural events on society.
• Learn scientific ideas that show how the Earth system works and help in assessing environmental problem areas (the many 'hot spots' that threaten ecosystems and humans).
• Learn to explore ideas in the laboratory, both observing and building experiments, and understanding the great and small of the environment: problems as big as the Earth and as small as one molecule will be explored.
• Develop group discussion and problem-solving skills. We will not solve any environmental problems in the class but we need to learn to discuss them in the context of scientific knowledge.
• Improve oral and written communication skills.
• Develop a collection of experiment-, library- and web skills relating to the environment.

Course Activities and Expectations
• You are expected to attend lecture and lab periods and to be an active participant (inquiry- and experiment based science requires your presence!)
• Reading: To participate successfully in the class you need to complete the readings from the text and handouts as assigned and as needed for class discussions and your research essays.
• Lab projects: You will learn to explore ideas experimentally, set up experiments, make measurement, analyze data, find additional sources of information, and reach conclusions. Each student, with one lab partner, will choose from a list of experiments and work on two such experiments during each of the three units. In addition to these 6 experiments every pair will build and test a solar box cooker, conduct some simple growing experiments, and study the experiments carried out by others.
• Essays: for each unit, you will choose from a list of topics provided. There will be a due date for an optional rough and a final due date. The essays will require research and reading outside the assigned readings. Topics may cover social, economic, historic, political aspects of the environment as well as the lab experiments themselves.
Prerequisites
There are no formal prerequisites. Students with a mix of backgrounds tend to do quite well with this format. An active interest about the natural world and human relationships with it is important.

Textbook

Additional Background Readings


Grading Policy

• Participation (25%) will be evaluated by observing your contribution to in-class activities, discussions and oral presentations.
• Quizzes (25%) will be given at the end of each unit covering the science core, reading and lectures.
• Lab books (25%) will be collected at the end of each unit. Guidelines will be provided for successful lab books, but will contain an extensive diary on lab projects (procedures, tables, sources). We urge you to write rough records of your experiments in your books, plus a summary and analysis afterward. Include notes from your observation of other experiments.
• Essays (25%) will take you from the science in the lab to the analysis of real-world situations. Using library and web resources, rather specific environmental questions will be addressed. Length will be approximately 5 pages (1.5 line spacing).

Unless you have a valid reason (e.g., an illness, a serious personal event, etc.) and take steps to notify the instructor as early as practicable, late assignments will be graded at half credit. If you have a valid reason for being absent we will offer alternate test dates and make up lab times.

There is no final exam, and the class will not meet during exam week.

The course will be graded on a curve (it is competitive) but the mean grade will be adjusted to reflect the overall level of student performance (collaboration helps). We will provide the class mean and standard deviation of grades for each essay and quiz.