

CHAMINADE UNIVERSITY OF HONOLULU  
ENV 202  
~~PHYSICS 202~~ ENVIRONMENTAL SCIENCE

SPRING 2000 SYLLABUS

The Environmental Science course consists of two components - a physics segment, taught during the first half of the semester, and a chemistry component, taught during the second half.

COMPONENT I - PHYSICS

1. OBJECTIVE OF THE PHYSICS COMPONENT:

This course component, which will last the first half of the semester, focuses on energy - our need for it, the various sources from which we obtain it, and the effect of our energy use on our environment. One of the most significant sources of environmental damage and change is due to modern society's need for very large amounts of energy. In a society like ours we rely on energy in just about everything we do, more than any other existing society, or any that has ever existed. The energy has to be extracted from the energy sources that exist, including from coal, oil, hydroelectric sources, nuclear power, solar, etc. No matter what source is used, the environment is affected to some extent or another. And no matter what the energy is used for, the byproducts of its use - thermal pollution, waste gases, radiation, etc. affect the environment. Furthermore, most of the energy sources are limited in extent, so that they will effectively be used up in a finite time if other sources are not found.

In this course we learn the basic physics concepts that are associated with energy its generation and use, and then go on to look at the different energy resources and the advantages, problems and issues associated with their use.

After you have studied both the physics and chemistry components you will:

- \* understand the role of science in understanding man's impact on the environment.
- \* understand the role of science in the planning of strategies by which our impact on the environment can be lessened.
- \* understand the chemical principles involved in pollution formation and control.
- \* understand and be able to apply physics principles to environmental issues in order to be able to predict outcomes (efficiencies, for example) in energy conversion processes.

TEXT: "ENVIRONMENTAL SCIENCE" 7th edition, by Nebel and Wright  
Publisher: Prentice Hall

The text contains an examination of, as the author say, "the way the world works" - particularly factors relating to humans in their environment on the earth. The text covers ecosystems, population, resources, energy, pollution, and finally, the sustainability of our way of life. For this physics component of the ENV 202 class the main chapters to be studied are chapters 1, 13, 14, and 15.

You are expected to take the responsibility for reading each chapter yourself. A quick skim just prior to the class presentation of the material would suffice initially - in order that you acquaint yourself with the main ideas that are in each chapter, and to get a good idea of the words and principles that are to be discussed in class. This first reading could consist of a ten minute skim. Then, as the material is currently being discussed in class, read through each section more carefully, making sure that you understand the detail of the work, and follow through the discussions and examples presented by the author.

4. **HOMEWORK:**

Homework assignments will be given approximately once each week. Quizzes are given at the end of each week, in addition to one preliminary exam and a final exam. The quiz and preliminary exam dates will be assigned in discussion with the members of the class. Makeups for quizzes and exams will only be given if the absence during the original assigned exam time is by an athlete involved in an official school sports event, or for medical reasons (with a doctor's certificate).

There will be a preliminary exam for the physics component held during the class time on February 8th. The final exam for the physics component will be held during the class on approximately March 3rd.

5. **EVALUATION:**

Points achieved during the physics component will count towards 50% of the overall grade in the ENV 202 class.

Within the credit related to the physics component the percentage breakdown relating to the various sources of credit are as follows:

These percentages are based on homework, quizzes, exams, etc. to the extent presented here:	Attendance:	5%
	Homework:	5%
	Quizzes:	30%
	Prelim. Exams	30%
	Final Exam	30%
	<b>TOTAL</b>	<b>100%</b>

Final grades for the ENV 202 class will be determined by combining the scores for the physics and chemistry components. The awarding of grades will clearly depend on the total points score, but will reflect the student performance, as well as the criteria stated in the Chaminade undergraduate catalog, which are:

- A -- Outstanding scholarship and an unusual degree of intellectual initiative.
- B -- Superior work done in a consistent and intellectual manner.
- C -- Average grade indicating a competent grasp of subject matter.
- D -- Inferior work of the lowest passing grade, is not satisfactory for fulfillment of prerequisite coursework.
- F -- Failed to grasp even the minimum subject matter; no credit given.

I -- Did not complete a small portion of the work or final examination due to circumstances beyond the student's control. The issuance of an "I" grade is not automatic. Prior to reporting of grades a contract must be made between the student and the instructor for the completion of the course.

6. **LABORATORY:**

The laboratory course, ENV 202L, is taken concurrently with the lectures. The lab periods will be used partly for lab experiments that illustrate relevant concepts in physics, in addition to off campus excursions to a power generating plants, for example.