MEC 280 : Pollution and Human Health

Spring 2008

Textbook:  *Pollution and Human Health,*
S. Harris (Wiley, 2003)

Classroom:  Room 123 Union.

Instructor:  Juldeh Sesay,
Department of Mechanical Eng.,
Room 247 Heavy Engineering, 2-8493
Jsessay@ic.sunysb.edu or juldeh.sessay@stonybrook.edu

Office Hours:  Tuesdays and Thursdays 12:30 – 1:30 p.m.
or by appointment

Teaching Assistant:  To be announced
Room 007 Light Engineering Bldg., 2-8387

Course Description
An examination of major environmental pollution problems such as electromagnetic radiation, ozone layer depletion, and global warming, with a specific focus on the resulting effects on human health. Assessment of health risks in relation to the formulation of environmental and workplace regulations is also considered

Topics
1. Course Introduction. Ecosystems and health:
   * Environmental health, ecosystems, human health, population size and health, carrying capacity

2. Historical perspective:
   * Early humans, the industrial revolution and population trends

3. Health effects of pollutions:
   * Acute and chronic effects, determining health effects of pollutants, pollutants pathways into and through the human body, pollutant effects on cells and organs

4. Urban pollution:
   * Urbanization, pollution from automobiles and other vehicles, combustion from stationary sources, direct health effects of urban smog, lead and asbestos, indirect effects-acid rain, noises on the urban cacophony

5. Depletion of the ozone layer:
   * The good ozone, ozone dynamics, halocarbons, ultraviolet radiation and skin cancer, immune system suppression, indirect health effects

6. Global climate change:
   * Where is the carbon, the greenhouse gas thermostat, the greenhouse gang, uncertainties? health effects of global warming
7. Radiation:
* Characteristics of ionizing radiation, biological effects, sources of low level ionizing radiation exposure, radioactive wastes, microwave radiation, low frequency electromagnetic fields

8. Indoor pollution:
* Radon, health effects of radon, formaldehyde, sick building and sick people

9. Pesticides and other xenoestrogens:
* Estrogen and xenoestrogens, pesticides, industrial chemicals

10. Risk assessment and management:
* Introduction, assessing risk, chronic effects, epidemiological studies, decision making

Grades:

All exams are closed-book, closed-notes exams. You are not required to bring along in the test any textbook, no electronic device(s) or ear piece, no paper(s) or sheet of paper(s). Acquiring any information relevant to the test from any source (other than the course instructors) during a test will be considered an act of Academic Dishonesty. All such acts will be reported immediately to the appropriate judiciary committee.

The final grading of this class is divided in to following sections:
(1) movies followed by class work,
(2) three mid-exams and one comprehensive final exam, and
(3) extra credit project.

There are eight class assignments and each carries 3 points. These assignments are based on eight different movies that will be shown during class lectures mostly on Tuesdays. Classes quizzes would be given out mostly on the following lectures (Thursdays) based on the movie shown in the previous lectures (Tuesdays). All quizzes would be collected before the end of class lectures and no late assignment(s) will be accepted. For your information, one or two movies might be shown on Tuesday lectures followed by the quizzes especially on occasions when attendance is very low.

Each section exam will consist of 25 multiple-choice questions about the material covered since the previous exam (including videos). The final exam will also have 25 questions; it will cover all course material. Your final grade will be based on continuous assessments and the scores are divided as follows:

1. Eight class quizzes: 25 points
2. Best three of your four exams: 75 points (25 points each)

If you have an excused absence you will be given an 'E' for the test; the 'E' will be replaced by the final exam score. A missed exam is given a score of zero UNLESS the absence was excused. An excused absence will require documentation. For example, suppose you are involved in a traffic accident while you are driving to the University to take an exam; a copy of the accident report is generally sufficient to have the absence excused.

Here is the grade curve for the course:
A [95, 100], A- [90, 94], B+ [85, 89], B [80, 84], B- [75, 79], C+ [70, 74], C [65, 69], D [55, 64], F [0, 54].

Your numerical course score (used in the grade curve above) = class work + [ best three test scores] + extra credit points; scores will be ‘rounded’ to the nearest whole number (using MS EXCEL).

Opportunities for earning up to 10 extra-credit points:

**Class is canceled for Tuesday, 4/07, and Thursday, 4/09.** In lieu of class on those two days I will be running an extra credit project. To earn 10 extra credit points you must participate in Session 1 (4/07) or Session 2 (4/09). Both sessions will be in the Union 123 at 3:50p. You may signup for a session at the end of any regular class starting from March 19. **Each session will be limited to 180 students.** You may attend only one session.

**Statement on Academic Dishonesty**

“Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work is not originally yours. Examples include, but are not limited to, copying or plagiarizing class assignments including homework, reports, design, computer programs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn.”