MEC 280: Pollution and Human Health

Fall 2016

Textbook: *Pollution and Human Health*,
S. Harris (Wiley, 2004)
ISBN: 978-471-48831-6

Classroom: Frey Hall, Room 100 & 102

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Office Hours: Tuesdays 10:30 – 11:30 am
Wednesday: 10:30 – 11:30 am.
or by appointment

Teaching Assistant:

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.

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].

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.”