

LECTURE SYLLABUS — ECOSPHERE IN CRISIS

Biology 104, Summer 2013

Laboratory Times: 9:10 - 12:10 PM – M W in Halsey Science 175

Lecture Times 9:10 - 12:10 PM – Tu Th in Halsey Science 175

Textbook (Lecture) - *Environmental Science: A Global Concern* by Cunningham and Cunningham, 13th edition.

Textbooks (Laboratory) - *Ecosphere in Crisis Summer 2014 Laboratory Manual* - printed version by Rainboth

LECTURE READING ASSIGNMENTS AND EXAM DATES

Read the entire chapter, including separate essays in colored blocks, summaries and discussion questions **before** lecture. For the first lecture, I will not follow the book that closely. Learn the words in boldface and the processes and phenomena described. Lectures will not be a synopsis of the chapter but will emphasize important aspects of your reading assignments. In some instances lecture material will relate information that is not included in the textbook. Lecture outlines and handouts will be available on D2L

| Week | Reading assignment | Subjects | Lecture Exams |
|-------------------|---------------------|--|------------------------|
| 16 June - 20 June | Chapters 1 - 4 | Intro., History, Ethics, Life (Ch. 2 in first lab) | |
| 23 June - 27 June | Chapters 5 & 6 | Communities, Ecosystems, Populations | |
| 30 June - 04 July | Chapters 7 & 9 | Human Populations, Overpopulation, Agriculture | |
| 07 July - 11 July | Chapters 11 & 12 | Biodiversity, Land Use and Preservation | Thurs. 9:10 AM |
| 14 July - 18 July | Chapters 16 & 15 | Air, Air Pollution, Climate Change | |
| 21 July - 25 July | Chapters 17 - 19 | Water Resources and Pollution, Conventional Energy | |
| 28 July - 01 Aug | Chapters 20, 10, 8 | Renewable Energy, Pesticides, Toxic Substances | |
| 04 Aug - 08 Aug | Chapters 21, 22, 25 | Hazardous wastes, Urbanization, Sustainability | Thurs. 10:30 AM |

Lecture exams cover lecture only. They do not cover the laboratory. The 2nd lecture exam will not include questions from the previous exam. All grades will be recorded numerically, and the final total will yield the only letter grade that you will see. Do not ask about your score, count the points yourself. I scale the grades at the end of the semester, so the scores below indicate the **worst** possible grade you will receive for your course average.

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|--------------|--------------|--------------|--------------|----------------------|----------------------|
| 100 - 93 = A | 86 - 83 = B | 76 - 73 = C | 66 - 63 = D | Lecture exam average | = 1/2 of total grade |
| 92 - 90 = A- | 82 - 80 = B- | 72 - 70 = C- | 62 - 60 = D- | Laboratory average | = 1/2 of total grade |
| 89 - 87 = B+ | 79 - 77 = C+ | 69 - 67 = D+ | < 60 = F | | |

Make-up exams for lab or lecture can be taken on the same day but with no penalty. Anything after the same day will cost 10% off the top. The only exceptions are for medical excuses or permission from the dean's office for university-sponsored activities. You must contact me prior to the exam (email is fastest and produces permanent record). Make-up exams do not have guaranteed equal difficulty.

LAB SYLLABUS

The goal of the lab is to enhance your understanding of some of the most important subjects the course covers. Therefore, certain topics covered in lecture will be handled in greater detail with an emphasis on their significance to the lives of students of these sections. Things you learn about today will influence important decisions you make in years to come. Knowledge is the key. Decisions you make will make your life easier or more difficult. Understanding the long term is important.

For the subjects covered in lab, there will be readings posted on D2L the week before and there will also be Powerpoint files that can be printed out to help you follow the subject matter. However you will still need to take notes. Fill in the questions in the lab manual as we progress through the exercises. You do not have to hand them in, but the questions will help you review for the exams. All exams (60 pts each) and quizzes (10 pts each) are open book, but have time limits. It will not be possible to look up every answer and therefore it is best that are familiar with the material. There are 2 Exams, one at mid-term and a final exam at the finish.

There is an exercise in the lab manual to help you calculate and report your personal energy consumption. Data will be collected over the period of one week, and will be used to make an estimate of your annual consumption. Follow the instructions for reporting your results. An important aspect of science is taking data and reporting your results in a manner that can be easily checked by anyone who reviews the information and how you summarized it. The exercise is worth 30 pts or the equivalent of 3

quizzes.

This is a lab science course. There is a NO CUT policy for lab. I will take roll, and absentees will receive grade penalties.

My office hours are posted outside my lab at Halsey Science 52. I am most likely to be found in my lab when I am on campus. Make an appointment after lecture if you require some other time.

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2014 Summer Semester Lab Schedule

Note that this schedule is tentative. Weather may intervene, or other potential sources of information or discussion may become available. Check your email.

Week 1 - Monday - **Subject:** What science is and how it works.

Presentation - Introduction to Science and the Scientific Method - presentation in lab + **Quiz**

16 June also homework assignment discussion — Begin personal energy consumption exercise

Week 1 - Wednesday - **Subject:** The ways that humans interact with the environment. Problems and Penalties.

Reading - *Easter's End* by Jared Diamond + **Quiz; Video** - "The Environmental Revolution"

18 June

Week 2 - Monday - **Subject:** Cooperation vs. competition for finite resources, and a real life example.

Reading - *Tragedy of the Commons* by Garrett Hardin + **Quiz; Video** - "The Last Harvest"

23 June

Week 2 - Wednesday - **Subject:** Ecology of Terrestrial Succession Patterns in Wisconsin Biotic Communities

Field Trip - Terrestrial Succession at Waukau Creek Nature Preserve

25 June

Week 3 - Monday - **Subject:** Common resources, ignoring nature and avoiding any potential limits on resource use.

Video - "The Power of Water"; **Video** "Public Lands, Private Profits" + **Quiz**

30 June

Week 3 - Wednesday - **Subject:** Ecology of Aquatic Succession Patterns in Wisconsin Biotic Communities

Field Trip - Aquatic Succession at the Terrell's Island Restoration Project

02 July

Week 4 - Monday - **Subject:** Serious problems with limited water resources. Should resources critical for life be treated as commodities for the profits of a few? + **Quiz**

Video - "Blue Gold - World Water Wars"

07 July

Week 4 - Wednesday - **Mid-term exam.** Hand in energy consumption exercise; Producing food - industry vs. people

Reading - Where Have All The Farmers Gone? **Video** - "Save the Earth, Feed the World" + **Quiz**

09 July

Week 5 - Monday - **Subject:** Climate change, the unfolding of the science and some of the latest concerns.

Video - "What's Up with the Weather?" (1st half); **Video** - "Dimming the Sun" + **Quiz**

14 July

Week 5 - Wednesday - **Subject:** Changes in the Fox Valley as people move, and societies and lifestyles evolve.
Field Trip - History of the Fox Valley - Visits to Butte des Morts and Former Industrial Areas in Oshkosh.
 16 July

Week 6 - Monday - **Subject:** Fossil Fuels, an ecologist's understanding, and the limits of the supply as seen by industry insiders. Then a video about the latest attempt to pretend that there are no limits.
Readings - *Jevons's Coal and Hubbert's Pimple* by Garrett Hardin + *The End of Cheap Oil* by Campbell and Laherrère plus **Video:** "Gasland - Can You Light Your Water On Fire?"
 21 July

Week 6 - Wednesday - **Subject:** Chemicals in the environment and our food; how did they get there and what are their effects?
Videos: "Great Lakes, Bitter Legacy"; "In Our Children's Food" **Quiz**
 23 July

Week 7 - Monday - **Subject:** Recently discovered effects of environmental chemicals and genetically modified organisms (GMOs) as food, plus the pesticides that come with them.
Videos: "Fooling with Nature"; "The World According to Monsanto"
 28 July

Week 7 - Wednesday - **Subject:** Economics - Solutions for a crashing economy. What did our ancestors know that we don't? **Video:** "The Secret of Oz"
 30 July

Week 8 - Monday - **Subject:** Examination of Aquatic Communities in Streams - diversity vs. uniformity.
Field Trip: Waukau Creek at the carp trap and at Waukau Creek Nature Preserve.
 04 August.

Week 8 - Wednesday - **Final Exam**
06 August 10:30AM