Syllabus: ESYS 10 Introduction to Environmental Systems

Dr. Sarah Gille
Lectures: Tuesday/Thursday 9:30-10:50, Center Hall 222
Office hours: EBUII 473 Tuesday, Thursday before class from 8:30 until about 9:15 or by appointment. I'm also available in the classroom, before and after class, or by e-mail.
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Objectives: By the end of this course, you should be able to describe the ocean/atmosphere climate system and the greenhouse effect, and explain how they interact with life on Earth. You should understand the differences between global warming, ozone depletion, and atmospheric pollution. You should be able to explain pros and cons of scientific and policy responses to biodiversity, pollution, the ozone hole, and anthropogenic greenhouse warming of the Earth.

Reading:

- Textbook: *The Earth System*, by Kump, Kasting, and Crane, Prentice Hall
- Additional articles will be distributed. (These may include for example newspaper clippings, environmental treaty documents, corporate reports on environmental activities.)

Format: This course will focus on using scientific findings to examine policy questions. We'll use a case study approach, and will spend some of our class time in small groups discussing specific examples. For this reason, class attendance and participation are very important and will be part of your grade.

Grading:

- 25% attendance, participation in group exercises, and submission of summary reports for the 4 case studies and the aquarium field trip. Summary reports are due no later than 1 week after completion of case study in class.
- 25% 5-7 page term paper, term paper progress report, and in-class presentation of findings
- 20% midterm
- 30% final exam
- Extra credit: Weekly homework will not be assigned. However, if you prepare written answers for the review questions at the end of each assigned chapter, you may bring them to the midterm (Ch. 1-4, 10, 15) and final exam (Ch. 5, 7, 13, 14) for me to evaluate. I will assign up to a 4 percentage points extra credit towards your final grade on the basis of your review question responses.
- Late assignments will not ordinarily be accepted.

Schedule

- January 7: Introduction to the course; pre-survey; Introduction to Global Change. Reading: Ch. 1
- January 9: Introduction (continued). Case study warm up.
- January 14: Daisy World, Case study 1, part 1. Reading: Ch. 2
- January 16: Bill Brick, San Diego County Air Pollution Control District, guest speaker. Come prepared with questions based on Case study 1.
- January 21: Global energy balance: The greenhouse effect. Case study 1, part 2. Reading: Ch. 3
- January 23: Global energy balance (cont.). Case study 2, part 1
- January 28: Paul Dayton, Scripps Institution of Oceanography, guest speaker.
- January 30: Biodiversity, Case study 2, part 2. Reading: Ch. 10, 15
- February 4: Atmospheric circulation. Discussion of term papers. Reading: Ch. 4
- February 6: Atmospheric circulation (continued). Exam review
- February 11: Midterm
- February 13: Ozone depletion. Case study 3, part 1. Reading: Ch. 14
- February 18: Ocean circulation. Case study 3, part 2. Reading: Ch. 5
- February 20: "Field Trip": Birch Aquarium at Scripps. More ocean circulation
- February 25: Carbon cycle. Follow up on midterm. Term paper progress reports due. Reading: Ch. 7
- February 27: Global warming/Kyoto Protocol. Case study 4, part 1. Reading: Ch. 13
- March 4: Term papers due. Student Presentations
- March 6: Lisa Shaffer, Revelle Program and Scripps International Office, guest speaker.
- March 11: Global warming/Kyoto Protocol (cont). Case study 4, part 2.
- March 13: course summary and exam review
- March 19: tentative final exam date (8-11 am)

What I mean when I require attendance:

Attendance is important for this class because you will be working in groups. On days when we have group activities (which will be almost every class period), I will always take attendance. You may have up to one absence during the quarter before your grade will begin to suffer. Please notify me and your group if you will miss class so that we can plan appropriately. Absences with prior notification will count as one-third absences.

What to Expect from ESYS 10 Exams:

Exams will include short answer and essay segments. Short answer questions may be lifted directly from the review sections at the end of each chapter in the book or may come from other material that we have discussed in class. Some questions may require writing a few words (to correct a false statement, for example) while others will require a short

paragraph. Essay questions will usually grow out of material that we have discussed in case studies or other group exercises. Typically you will be asked to read a short passage about an environmental issue and to comment on it from both a scientific and policy perspective. The essays that receive the best grades usually contain clear and well-thought out arguments that are supported by factual evidence.

The midterm will cover the first two case studies and the textbook chapters that we discuss in class prior to the midterm. The final exam will be cumulative. It will cover all four case studies and all of the assigned textbook chapters, (though it will emphasize the textbook material from the second half of the course.)

Please note that university policy does not allow you to reschedule exams for personal reasons. Although the final exam is tentatively scheduled for Wednesday, it could be reschedule for any time between Monday March 17 and Saturday March 22. Plan your spring break travel accordingly.

A Note on Citation and University Level Writing:

In this course you will complete two types of writing assignments. For each case study, I will ask you to submit a written summary of your own research and your group's discussion of the case. These may be handwritten (though past experience suggests that typed responses often appear more carefully thought out and receive better grades). Towards the end of the quarter you will complete a 5-7 page term paper, which should be typed and double-spaced.

No matter how informal the writing assignment, I expect you to acknowledge your sources. You must include a reference list or detailed footnotes or endnotes. In addition, you should indicate in the text the specific sources for the facts and opinions that you draw from other sources. The strictest guidelines suggest that if you more than three consecutive words are quoted verbatim from a source, then you should surround them with quotes and identify the source. Even if you change the words, if the ideas come from a web site or published document, then you should indicate what resource you've consulted.

Citations can be done in a variety of ways, and any of the standard forms (numbered footnotes, numbered endnotes, etc.) are acceptable for this course. Standard scientific citation lists author and year in brackets in the text. For example, in the text you might see [Gille, 2003] or [Smith and Jones, 1898]. A reference list at the end, alphabetized by author's last name, provides full publication information. For example:

References

Gille, S. T., "Syllabus: ESYS 10 Introduction to Environmental Systems", UCSD, Winter 2003.

Smith, A. B. and C. D. Jones, Fictional article name, *Journal of the Unknown*, vol. 1, pp. 1-30, 1898.