Instructor: David Ehrenfeld (dehrenfeld@aesop.rutgers.edu)  
ENR, room 122  
Office Hours: By appointment  
Class meeting time: Wednesday 9:15-12:15 (double period) in ENR room 123  
Pre-requisite: Gen Bio 115/116

**Course Objectives:**

1. To gain an understanding of the effects of technology and human population growth on species, ecosystems, and human communities.
2. To understand the environmental impact of agricultural and industrial systems on animal, plant and human communities.
3. To learn and understand the biological and social underpinnings of conservation through extensive scientific and non-scientific readings.

3a. To be able to follow and critique complex ecological arguments regardless of whether they were from a research article in *Science* or a play by Ibsen. To be able to detect the main points of the readings, to identify their main strengths and weaknesses, to give concise evaluations of each reading, and to understand why each reading was assigned.

4. To write clear, concise weekly short and long reports on the readings, explaining the points listed in 3a, and to submit a final term paper after a draft revision.

5. To be able to join creatively in articulate, informed class discussions of the readings.

**Course Learning Goals:**

1. To become familiar with the major environmental challenges of our time, and their interactions (terrestrial and marine pollution, climate change, emerging diseases, species extinctions, invasive species, agricultural problems, energy shortages, nuclear accidents, and the environmental and social upheavals they cause). To be able to use scientific and technological information to evaluate the potential effectiveness of proposed responses to the challenges. To understand and evaluate the often opposing opinions that each challenge generates.

2. To use the corrective feedback acquired in class discussions to improve the students' ability to evaluate and discuss novel problems.

To use the corrective feedback provided by the instructor's grading of the weekly reading reports and the instructor's after-class, individual discussions with students to improve their ability to evaluate the readings and to steadily improve their use of written English in reports and assigned papers. Students must submit for approval their term paper topic (February), and a term paper progress report including progress with literature survey (late March). Except for books which you should purchase (marked with an asterisk *), all of the readings for the course are in this packet except online readings (marked with a capital letter). **Textbook:**

**Academic Integrity:** All students are expected to follow University policies on academic integrity: [http://academicintegrity.rutgers.edu/](http://academicintegrity.rutgers.edu/) A page on plagiarism and the university policy is in the course guide.
<table>
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<tr>
<th>ASSIGNMENT</th>
<th>READINGS</th>
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| 1 | * The Sixth Extinction, Elizabeth Kolbert, Bloomsbury paperback, 2014.  
HendricksonM@missouri.edu  
| 2 | Out of the Earth, D.J. Hillel (New York: Free Press, 1991), Chaps. 18,19, (pp. 135-158).  
| 3 | * The Unsettling of America: Culture and Agriculture, Wendell Berry (San Francisco: Sierra Club Books, 1977), Chaps. 1-5, 7.  
| abc | 6 | *The Death of Ramon Gonzalez.  Angus Wright (Austin, TX, University of Texas Press, 2005), chaps. 1-10.  
“Taking seriously the claim that genetic engineering could end hunger: A critical analysis,” Peter Rosset, in: Engineering the Farm, op. cit., pp. 81-93.  
"How to get even with pests," Lindsay A. Turnbull and Andy Hector, Nature 466: 36-37, 2010.  
<p>| abc | 7 | &quot;Planet and population,&quot; Sir David Attenborough, Population Press, |</p>
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<tr>
<th>R</th>
<th>Title</th>
<th>Author(s)</th>
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<td>8</td>
<td>* Small is Beautiful</td>
<td>E.F. Schumacher</td>
<td>(New York: Harper &amp; Row, 1973), Part I, chaps. 2,4,5; Part II, chap. 5; Part III, chap. 2; Part IV, chap. 1.</td>
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Where the birds are our friends," Gary Nabhan, in The Desert Smells Like Rain (San Francisco: North Point Press, 1982), pp. 89-97.


Optional reading:
1. Deadlines:
   - Feb. 18: Select topic. Hand in a regular-sized piece of paper with a) title, b) 1-paragraph description, c) list of 4 or 5 refs.
   - Mar. 25: Progress report: a) title, b) 1-2 paragraphs explaining what you have done so far, c) list any new refs.
   - April 29: Paper due. Last day of class. No extensions except for serious illness or major family problems (documented).

2. Paper topic: You may choose any topic you wish -- I will speak with you if the topic seems unnecessarily difficult or inappropriate. Do not choose topics that are unrelated to the subject matter of the course, eg. "A new method for treating sewage sludge." I do, however, permit related topics in fields other than ecology - even as far afield as history, psychology, or literature. If you are having trouble finding a topic, I suggest that you look at a recent issue of Conservation Biology, Ecological Applications, BioScience, or any other journal with good conservation articles. When you find a paper that interests you, it may suggest a topic, and this will automatically give you references to follow up.

3. Page limit: At least 12 pages of text, not including figures (no more than 50 pages) Put figures and tables at the end, after references. Double- or 1 1/2-spaced, normal margins, with a font size that gives about 14 words to a line and at least 27 lines to a page. Number your pages! If you can, print double-sided to save paper. Please do not use plastic covers; a staple is sufficient.

4. Research and references: The best citations for this paper will be articles from journals such as Conservation Biology, Frontiers in Ecol. & Env., American Scientist (this is not Scientific American), BioScience, Ecological Applications, Biological Conservation, Science, Nature, Bull. Marine Science, New Scientist, etc. Books are second-best. Newspaper and popular magazine articles are acceptable, but should not predominate. A typical good list of references will have 10-40 items. I will not accept more than five websites in your list of references. In addition to the web address, you must have the name and affiliation of the person responsible for the information in the web site. (This is because web citations are often anonymous, of low quality, and have not been reviewed or edited to make them meet acceptable standards of truthfulness and accuracy. They are also transient, here one day, gone or "down" the next.) Papers that violate this guideline will receive low grades. Do not rely on Wikipedia – if you use it, check the information in other sources.

5. Literature Cited: Use the citation format found in Conservation Biology. For example, in your paper say, "Smith (1996) reported...." or, "This observation has been noted by a number of scientists (Smith 1921; Jones 1994; Brown et al. 2006)." The Literature Cited section should be arranged alphabetically by author. Do not include things you have read but not cited in the paper; this is not a bibliography. Do not use numbered footnotes. The Literature Cited section must include a reference to every article or book cited in the text. For examples of how to cite references, look at the "literature cited" section of any article in Conservation Biology, and consult the “Citation of References” section of the Guidelines for Writing Papers. Also read the page on Plagiarism and Academic Integrity.