Psychology 411
Professor Moore Spring 2005

Syllabus
Psychology of Environmental Issues

Course goals:

1. Learn about some of the ways in which environmental hazards influence psychological functioning.

2. To learn about how our own attitudes, beliefs, values, decision processes, and actions directly and indirectly create pollution or damage the sustainability of the natural environment.

3. To improve your written communication skills. This is a writing-intensive course.

4. To improve your oral communication skills.

5. To improve your library and electronic research skills as a citizen-scholar; to learn to distinguish among and critically evaluate different sources of information.

Required readings will be a book available for purchase at University Book Store, and a reading packet to be purchased from StudentPrint, Memorial Union. You will also be required to read other original research articles on the topics that we are covering. You will locate some of those articles yourself using library databases.

Grading
Class attendance and participation is required. 30% of the course grades will be based on the written and oral presentation assignments. I expect written work that is top quality. Work that does not meet these standards will need to be re-written, or I will give you a slightly modified assignment. I give extensive feedback on each assignment so that you can improve your writing skills. Some written assignments will be point-graded, and will count proportionately in the 30% to be determined by the weekly written assignments. One assignment is a mid-term which will count 20%. The other 50% of your grade will be based on the term paper. The term paper will be on a topic chosen by the student, but must be relevant to the course and must be approved by me. There are several written assignments leading up to the term paper. An oral term paper presentation is required. The term paper presentations will allow the whole class to share the new knowledge created through the term paper assignment, and are a fun part of the course.

Course Procedures
This will not be a lecture course. The course will be a seminar in which we discuss the readings. Occasionally each of you will be responsible for brief oral summaries of and commentaries on original research articles that are pertinent to the topic we are covering. Sometimes the articles will be in the

reading packet, but sometimes you will be required to locate material yourself.

Central Theme and Issues

An important phenomenon in environmental issues is that scientists can disagree about the importance or strength of the impact of certain events (for example, a type of pollution, extraction of a natural resource) on both the well being of humans, and the well-being of the natural environment. The organizing themes of this course will be: Why do scientists disagree about environmental impacts? What decision criteria and ethical issues are implicitly and explicitly involved in those scientific differences and in environmental regulations? We will emphasize the roles of human judgment and decision processes in both scientific research and environment regulation, as well as in avoiding environmental hazards to oneself, and avoiding negative impacts on nature.

Part A. Human environmental behavior toxicology

Readings in this section will be primarily from my book, *Silent Scourge: Children, Pollution, and Why Scientists Disagree*

1. Background. Read Prologue, *Silent Scourge*.

Writing assignment #1. Find a news item about an environmental issue (newspaper, magazine, radio, tv, web newpaper, etc.). Write a synopsis of the news item. Comment on whether the news item included sources of controversy about the environmental issue. Are different scientific findings or scientific controversies considered? Is there any mention of ethical or decision issues? (1-2 pp.) (We will discuss these in class.)

2. *Silent Scourge*, Ch. 1., Lead exposure and the roots of environmental controversy; and Appendix, pp. 262-266.

Writing assignment #2 (1-2 pp): Choose topic a, b or c. a) Ernhart and Needleman disagreed partly because they took different stances on whether it was legitimate to interpret results that did not quite meet the $p<.05$ standard of social science. Write a commentary on the implications of interpreting research findings that do not quite meet the .05 standard. Are there some research topics for which a strict p-level should be used (say, .01) and others for which a lax standard (say, .10) should be used? (Make sure you include the issue of statistical power). b) Kehoe and Patterson differed in their points of view on what level of lead exposure should be considered to be "normal". Write a commentary on how assumptions about what is "normal" impact the research process. You may use any area of psychology with which you are familiar for this assignment. c) Choose either the "chicken or egg" issue for restlessness and inattention (does restlessness/inattention in a child cause the child to have higher lead exposure, or vice versa), or the issue of whether race/ethnicity and income should be considered to be covariates or causes of lead exposure. Write a commentary in which you argue logically for one position over the other.

3. *Silent Scourge*, Ch. 2: Mercury, not just a fish story.

Oral Presentation Assignment. Find an original research article on how mercury exposure affects some aspect of psychological functioning or behavior. The article can be about wildlife, lab animals or humans, children or adults, something I covered in my chapter, or something I didn't cover.

Working with a partner you will give a presentation of the article in class. The presentation should give us a good summary of the article, and a commentary on it. (We will have 3 presentations.)

Writing assignment #3. Risk assessment. Choose one type of judgment call that is part of the risk assessment process. Write a 1-2 page commentary in which you argue logically about the importance of that one type of judgment call. Illustrate your points with examples from the readings or class presentations. What ethical issues are implicitly involved, and how might people differ in their viewpoints on the ethical issues?

4. *Silent Scourge*, Ch.3, PCBs, another global pollutant.

Oral Presentation Assignment. Find an original research article on how PCB exposure affects some aspect of psychological functioning or behavior. The article can be animal research or human research, wildlife, children or adults, something I covered in my chapter, or something I didn't cover. Working with a partner you will give a presentation of the article in class. The presentation should give us a good summary of the article, and a commentary on it. (We will have 3 presentations).

Writing assignment #4. Choose topic a) or topic b). a) The Michigan study has been the center of policy decisions and controversy. Find a recent article on PCB exposure in children and compare the results to those of the Michigan study. (2-3 pp.). b) Choose a PCB controversy (Fox River, Hudson River, POP treaty, fish consumption warnings, or find another). Present a synopsis of both sides of the cleanup controversy. Find the best quality of information you can – official EPA or DNR website, environmental impact or environmental assessment reports, corporation websites, environmental organization websites, community declarations on the issue, etc. (2-3 pp).

5. *Silent Scourge*, Ch. 4, Why OP and carbamate pesticides should be studied.
Also, McKibben, 2000, in the reading packet.

Oral Presentation Assignment. Find an original research article either on how pesticide exposure affects some aspect of psychological functioning and behavior, or on a decision making issue in pesticide use. The article can be lab animal research, human research, wildlife, children or adults, something I covered in my chapter, or something I didn't cover. Working with a partner you will give a presentation of the article in class. The presentation should give us a good summary of the article, and a commentary on it. (We will have 3 presentations). (You will need to search a database other than PsychInfo in order to do this assignment.)

Writing assignment #5. Write a 3-4 pp. paper one of the following: a) Outline the design of a long term study of the effects of exposure to pesticides on children's behavioral development. Justify your choices of sample and outcome measures based on what is already known about pesticide exposure or the effects of smoking on children's development; b) Write a summary and commentary of an empirical research study on the effects of pesticides on wildlife; c) Write a summary and commentary of a behavioral neuroscience article on how pesticide exposure affects behavioral development in lab animals; d) Choose a synthetic pesticide controversy. Present a synopsis of both sides of the controversy. Find the best quality information you can – official EPA or DNR website, environmental impact reports filed by agencies doing the spraying, journal articles on the disease, pesticide resistance of host insects, public health agency declarations, etc.; e) read Rachel Carson's *Silent Spring* and write a book review as if it were 1962 and the book were just being published.

6. *Silent Scourge*, Ch. 7. The Best Science, Values, and the Precautionary Principle to Protect Children

Writing Assignment #6. Write a 4-5 pp. essay. "How much pollution is too much" is the central question of environmental policy. Take a research example from the sections on human impacts on wildlife and outline the sources of scientific uncertainty, judgment calls and ethical issues that are involved in deciding whether to regulate the pollutant more strictly. (This assignment will be **point-graded**, and we will likely do a **peer feedback** exercise with it.)

7. *Silent Scourge*, Ch. 5, Noise.

Oral Presentation Assignment. Choose one of the following options and, working with a partner, prepare a 10 minute oral presentation. Make sure your presentation shows cognizance of the major noise issues raised in Ch. 5. a) Interview a person who is hard of hearing about issues related to hearing speech in daily life situations, or other issues of daily life; b) Interview a public official about a noise issue on campus, in Madison, or your home town (e.g., in Madison you might contact someone at the airport, or someone in the state highway department); c) Interview an elementary school teacher about noise from inside and outside the school. Visit the school. d) Identify a campus or downtown Madison noise issue and propose potential solutions; e) Visit a campus natural area (Arboretum, Lakeshore path, Picnic Point, Frautschi Point) at two different times of the week (e.g., a weekday during the afternoon rush hour and a Sunday morning). What differences in noise do you notice, and are there noise issues that need attention?
(Other noise projects are also possible; if you have another idea, please discuss it with me).

8. *Silent Scourge*, Ch. 6. It isn't fair: Environmental pollution disasters and community relocations.

Writing Assignment #7. Choose one of the following options and write a 2-3 pp. essay. a) Consider ethical claims based on procedural justice. To what extent could (or did) the residents at Love Canal have based their arguments on need for procedural justice? Would the residents' claims about procedural justice have conflicted with the NY Dept of Health's interpretation of procedural justice? b) A central issue in pollution disasters is that there is psychological harm even if the pollutants themselves do not directly cause psychological effects. Outline a plan for decreasing the psychological impacts of pollution disasters. You may draw on your knowledge of all areas of psychology. You can choose a specific pollution disaster or you may describe your plan in more general terms. c) Take a position on the following issue and argue for or against it. Support your position with research findings or psychological theory. "Communities near nuclear installations in the U.S. should practice emergency procedures including evacuations." d) Propose your own topic related to pollution disasters, and ask me to approve it prior to writing it (other possibilities are reading about atomic veterans, biographies of key figures in controversies over radio-nuclides such as Karl Z. Morgan or Alice Stewart, effects on wildlife).

Part B. Human decision making processes and human impacts on nature

1. Risk perception and decision analysis

Freudenburg, W. R. (1988). Perceived risk, real risk: Social science and the art of probabilistic risk assessment. *Science, 242*, 44-49.

Flynn, J., Slovic, P. & Mertz, C. K.. (1994).Gender, race, and perception of environmental

health risks. *Risk Analysis*, 14, 1101-1108.

2. Tragedy of the commons and environmental ethics.
   Dawes, R. M. (1980). Social dilemmas. *Annual Review of Psychology, 31,* 163-193.

   Kortenkamp, K. V. & Moore, C. F. (2001). Ecocentrism and anthropocentrism: Moral reasoning about ecological commons dilemmas. Journal of Environmental Psychology.

   McKibben, B. (2000). Consuming nature. The Sun, Issue 295, 20-23.

3. Valuing the costs of pollution vs. the benefits of clean-up or environmental preservation
   Brandt. (1993, June/July). How much is a gray wolf worth? *National Wildlife,* 4-12.

4. Natural resource management decision-making issue
   Mitchell, M. Y., Force, J. E., Carroll, M. S., & McLaughlin, W. J. (1993). Forest places of the heart: Incorporating special spaces into public management. *Journal of Forestry, 91,* 32-37.

5. Effects of human activities on animals

   a. Tourism and recreation
      de la Torre, S. et al. (2000). Effects of human activities on wild pygmy marmosets in Ecuadorian Amazonia. *Biological Conservation, 94,* 153-163.

      Isaacs, J. C. (2000). The limited potential of ecotourism to contribute to wildlife conservation. *Wildlife Society Bulletin, 28,* 61-69.

      Swarthout, E. C. H. & Steidl, R. J. (2003). Experimental effects of hiking on breeding Mexican spotted owl. *Conservation Biology*, 17(1), 307-315. (Not in reading packet – in UW on-line library).

      McMillan, M. A., Nekola, J. C. & Larson, D. W. (2003). Effects of rock climbing on the land snail community of the Niagara escarpment in southern Ontario, Canada. *Conservation Biology*, 17(2), 616-621. (Not in reading packet – in UW on-line library).

      Fernandez-Juricic, E., Jimenez, M. D. & Lucas, E. (2001). Alert distance as an alternative measure of bird tolerance to human disturbance: Implications for park design. *Environmental Conservation*, 28(3), 263-269. (Not in reading packet – in UW on-line library).

   b. Boating and noise
      Mikola, J. et al. (1997). The effects of disturbance caused by boating on survival and behaviour of velvet scoter *Melanitta fusca* ducklings. *Biological Conservation, 67,* 119-124.

      Schlundt, C. E., Finneran, J. J., Carder, D. A. & Ridgway, S. H. (2000). Temporary shift in

masked hearing thresholds of bottlenose dolphins, Tursiops truncatus, and white whales, Delphinapterus leucas, after exposure to intense noises. *Journal of the Acoustical Societ y of America, 197*(6), 3496-3508.

Gerstein, E. R. (2002). Manatees, bioacoustics and boats. *American Scientist, 90*(2), 154-163.

Aipanjiguly, S., Jacobson, S. D. & Flamm, R. (2003). Conserving manatees: Knowledge, attitudes, and intentions of boaters in Tampa Bay, Florida. *Conservation Biology*, 17(4), 1098-1105. (not in reading packet – available in UW library on line).

Williams, R., Trites, A. W. & Bain, D. E. (2002). Behavioural responses of killer whales (Orcinus orca) to whale-watching boats: opportunistic observations and experimental approaches. *Journal of Zoology , London*, 256, 255-270. ((Not in reading packet – in UW on-line library).

Rodgers, J. A. Jr. & Schwikert, S. T. (2002). Buffer-zone distances to protect foraging and loafing waterbirds from disturbance by personal watercraft and outboard-powered boats. Conservation Biology, 16(1), 216-224.

c. Roads and power lines

Rosen, P. C., & Howe, C. H. (1994). Highway mortality of snakes in the Sonoran desert of southern Arizona. *Biological Conservation, 68,* 143-148.

Hels, T. & Buchwald, E. (2001). The effect of road kills on amphibian populations. *Biological Conservation*, 99, 331-340. (not in reading packet – in on-line library).

Gibbs, J. P. & Shriver, G. (2002). Estimating the effects of road mortality on turtle populations. *Conservation Biology*, 16(6), 1647-1652. (Not in the reading packet – in on-line library).

Bevanger, K. & Broseth, H. (2001). Bird collisions with power lines – an experiment with ptarmigan (Lagopus spp.). *Biological Conservation*, 99, 341-346. (Not in the reading packet; available on line through UW library).

d. Pesticides

Fryday, S. L. et al. (1996). Effects of exposure to an organophosphorus pesticide on the behavior and use of cover by captive starlings. *Environmental Toxicology and Chemistry, 15,* 1590-1596.

Fluetsch, K. M., & Sparling, D. W. (1994). Avian nesting success and diversity in conventionally and organically managed apple orchards. *Environmental Toxicology and Chemistry, 13,* 1651-1659.

Pascual, J. A. (1994). No effects of forest spraying malathion on breeding blue tits (*Parus caeruleus*). *Environmental Toxicology and Chemistry, 13,* 1127-1131.

Vyas, N. B. (1999). Factors influencing estimation of pesticide-related wildlife mortality. *Toxicology and Industrial Health, 15,* 186-191.

Jacobson, S. K., Sieving, K. E., Jones, G. A. & VanDoorn, A. (2003). Assessment of farmer attitudes and behavioral intentions toward bird conservation on organic and conventional Florida farms. *Conservation Biology*, 17(2), 595-606. (Not in reading packet; in UW on-line library).

Beecher, N. A., Johnson, R. J., Brandle, J. R., Case, R. M. & Young, L. J. (2003). Agroecology of birds in organic and nonorganic farmland. *Conservation Biology*, 16(6), 1620-1631. (Not in reading packet; in UW on-line library).

e. War and Wildlife

Dudley, J. P., Ginsberg, J. R., Plumptre, A. J., Hart, J. A. & Campos, L. C. (2002). Effects of war and civil strife on wildlife and wildlife habitats. *Conservation Biology*, 16(2), 319-329. (Not in reading packet – in UW on-line library).

MMPA Bulletin (2000). Update on the mass stranding in the Bahamas. Issue 19/20, p. 3. (available online at http://www.nmfs.noaa.gov/prot_res/PR2/MMPA_Bulletin/mmpabulletin.html).

Term Paper Assignments

These assignments will be interwoven with the other assignments. My goal is make the term paper project an integral part of the course rather than a last minute panic job. The sequence of assignments is designed to help you develop your project systematically over the course of the semester. It is never too early to begin thinking of a term paper topic. One way to get ideas for topics is to browse the reading packet and book, browse abstracts of articles, or (even!) go to the library and browse recent issues of journals (doing this with hard copy might be more efficient than web-browsing even with a fast computer).

Term Paper Assignment #1. Submit your topic. Write at least a sentence or two about a topic on which you would like to write your paper. Some students have several ideas and are undecided about which one to pursue. It is fine to give a couple of different ideas. I will give you feedback that might help you find some direction.

Term Paper Assignment #2. Submit a paragraph on your term paper topic, and a bibliography of at least a few references. The paragraph should include a thesis statement describing the main theme of your paper. Of course, as you develop the paper the thesis will evolve. Also, write a reflective paragraph that explains to me what barriers you have encountered in working on your topic, and how you feel about your progress. Where are you stuck or confused?

Term Paper Assignment #3. Submit a 2-3 page section of your term paper and a bibliography with more than you had for Assignment #2. The section can be: a) the introduction, describing the thesis and laying out the background for the rest of your paper, b) a summary and critique of an empirical research paper that will be incorporated in your term paper, c) a one page abstract or summary of your entire paper, plus an outline of the paper and an annotated bibliography (a bibliography with a bout two sentences summarizing each item in the list). As #2, write a reflective paragraph that tells me where you are encountering problems. At this point, I hope you are dealing with different problems such as how to discuss conflicting research findings, or how to best organize your paper to establish a logical progression of the ideas.

Term Paper Assignment #4. Draft and peer feedback. You will turn in a draft of your entire paper. Each student will provide feedback to another student on the term paper draft. I will give you further information on the peer feedback exercise later. My classes in the past have found it very helpful.

Final Paper Due: The final term paper is due on the scheduled date of the final exam in the Timetable. Term paper presentations will occur during the last 2 1/2 weeks of classes.