

## Lecture Schedule and Readings

ENVIRONMENT 201      Autumn 2005      James R. Karr  
Ecology and Conservation: Humans in the Environment

Lec/Wk Date/Day	Lecture Topic, MGH 389	Readings and other activities *Required Readings, all others for supplementary information only.
<b>Life on Earth: Past and Present</b>		
1 (I) Sept 28 W	Scope of Course; Learning Goals; Teaching Strategies; Staff Introductions	*COURSE TEXTBOOK: Uhl, C. 2004. <i>Developing Ecological Consciousness: Path to a Sustainable World</i> . Roman & Littlefield, Lanham, MD.
2 (I) Sept 30 F	Universe, Solar System, and Earth: Spatial and Temporal Heterogeneity	
3 (II) Oct 3 M	Earth's Geographical Ecology: Terrestrial Biomes, Spatial Heterogeneity	
4 (II) Oct 5 W	Human Geographical Ecology: Another Level of Heterogeneity	Diamond, J. 2002. Evolution, consequences and future of plant and animal domestication. <i>Nature</i> 418: 700–707. Diamond, J. 2003. Farmers and their languages: the first expansion. <i>Science</i> 230: 597–603.
5 (II) Oct 7 F	Ecology: Individuals, Populations, and Metapopulations	Stokstad, E. 2005. Will Malthus continue to be wrong? <i>Science</i> 309:102.
6 (III) Oct 10 M	Ecology: Interspecific Interactions, Coevolution, and Communities	Ripple, W. J. and R. L. Beschta. 2005. Linking wolves and plants: Aldo Leopold and trophic cascades. <i>BioScience</i> 55: 613-621.
7 (III) Oct 12 W	Ecology: Energy, Biogeochemical Cycles, and Ecosystems	
8 (III) Oct 14 F	Ecology: Landscapes and Behavior, Lyme disease in the East and wolves in Yellowstone	Pennisi, E. 2005. How did cooperative behavior evolve? <i>Science</i> 309: 93
9 (IV) Oct 17 M	Island Biogeography and Human Natural History: Pacific Island Societies	Diamond, J. 1997. <i>Guns, Germs, and Steel</i> . Chapter 2, pp 53–66 and Chapter 17, pp. 334–353.
10 (IV) Oct 19 W	Ecosystem Engineers and Footprints	*Wackernagel, M. et al. 2002. Tracking the ecological overshoot of the human economy. <i>Proc. Nat. Acad. Sci. (US)</i> 99: 9266–9271.

11 (IV) Oct 21 F	Auditing the Earth: Terrestrial	Vitousek et al. 1997. Human domination of Earth's ecosystems. <i>Science</i> 277: 494–499.
12 (V) Oct 24 M	Auditing the Earth: Marine and Aquatic	Pew Oceans Commission. 2003. <i>America's Living Oceans: Charting a Course for Sea Change</i> . A Report to the Nation. Pew Oceans Comm., Arlington, VA. U.S. Commission on Ocean Policy. 2004. <i>An Ocean Blueprint for the 21<sup>st</sup> Century</i> . Final Report. Washington, DC.
13 (V) Oct 26 W	Completion of above and five-week synthesis	
14 (V) Oct 28 F	Review: questions from students	Review lectures and readings Students come prepared to ask questions in review session.
15 (VI) Oct 31 M	Mid-term exam	50 minutes, in class. Covers lectures 1-14; discussions weeks I-V; and required readings. <b>Exams cover lectures as given, not lecture outlines on web.</b>
<b>The Many Faces of Biotic Impoverishment</b>		
16 (VI) Nov 2 W	Indirect Depletion: Alteration of Physical and Chemical Systems	Chu, E. W. and J. R. Karr. 2001. Section III of Environmental Impact, Concept and Measurement of. Pages 560–569 in S. A. Levin, editor. <i>Encyclopedia of Biodiversity</i> , Volume 2. Academic Press, Orlando, Florida.
17 (VI) Nov 4 F	Direct Depletion: Nonhuman Living Systems	Stogstad, E. 2005. Taking the pulse of Earth's life-support systems. <i>Science</i> 308: 41–43.
18 (VII) Nov. 7 M	Direct Depletion: Human Living Systems	
19 (VII) Nov 9 W	Societies Fail And Societies Succeed I	Diamond, J. M. 2004. <i>Lessons from Environmental Collapses of Past Societies</i> . 4 <sup>th</sup> Annual J. H. Chaffee Memorial Lecture on Science and the Environment. January 29, 2004. NCSE, Washington, DC.
(VII) Nov 11 F	No lecture	Holiday
20 (VIII) Nov 14 M	Societies Fail And Societies Succeed II	Rolett, B., and J. Diamond. 2004. Environmental predictors of pre-European deforestation on Pacific islands. <i>Nature</i> 431:443-436. *Ehrlich, P. and D. Kennedy. 2005. Millennium assessment of human behavior. <i>Science</i> 309: 562–563.

<b>Indicators: Tools to Guide Decision-Making</b>		
21 (VIII) Nov 16 W	It Matters What We Measure: Economic Indicators	*Cobb, C., T. Halstead, and J. Rowe. 1995. If the GDP is up, why is America down? <i>Atlantic Monthly</i> , October 1995.
22 (VIII) Nov 18 F	It Matters What We Measure: Social Indicators	Karr, J. R. 2005. Indicators: It matters what we measure. Essay 18.2 (Pages 669–671) in M. J. Groom, G. K. Meffe, and C. R. Carroll. <i>Principles of Conservation Biology</i> , Third edition. Sinauer, Sunderland, MA.
23 (IX) Nov 21 M	It Matters What We Measure: Ecological Indicators	Millennium Ecosystem Assessment. 2005. <i>Living Beyond our Means: Natural Assets and Human Well-Being. Statement from the Board.</i> Also see more detailed MEA reports published by Island Press in 2005.
<b>Making Connections: Ecology, Health, and People</b>		
24 (IX) Nov 23 W	Disease, Health, and Well-being: More Human Ecology	McMichael, A. J. 2001. Human culture, ecological change, and infectious disease: Are we experiencing history's fourth great transition? <i>Ecosystem Health</i> 7:107–115.
(IX) Nov 25 F	No lecture	Thanksgiving Holiday
25 (X) Nov 28 M	FILM: Empty Oceans, Empty Nets.	Director Steve Cowan, Habitat Media, PA : Bullfrog Films, 2002
26 (X) Nov 30 W	Evolving Perspectives: People and Environment	Thiele, L. P. 1999. <i>Environmentalism for a New Millennium: The Challenge of Coevolution.</i> Oxford University Press, New York. Chapters 1 and 2.
27 (X) Dec 2 F	Ecological Thinking, Conservation, and Public Policy	Lubchenco, J. 1998. Entering the century of the environment: a new social contract for science. <i>Science</i> 279: 491–497.
<b>Looking to the Future</b>		
28 (XI) Dec 5 M	Unifying Principles: Recognizing Reality and Seeing a Better Future	*Orr, D. W. 2004. <i>The Last Refuge: Patriotism, Politics, and the Environment in an Age of Terror.</i> Chapt. 13, "Postscript: The Hour Before Dawn" (pages 132–137) and Appendix, "Common Ground/Common Future" (pages 139–149).
29 (XI) Dec 7 W	Discussion: Principles for a Better Future	Open discussion and question and answer session on the Orr readings and lecture 28 (Dec. 5).
30 (XI) Dec 9 F	Review: questions from students	Review lecture notes and readings. Prepare questions for review session.
Dec 15	<b>FINAL EXAM</b> <b>Thursday; 8:30–9:30; MGH 389</b>	60 minutes. Emphasis on material presented, discussed, and read since mid-term exam. Exams cover lectures as given, not lecture outlines on web.

## Section Schedule; Required Readings

ENVIRONMENT 201

Autumn 2005

James R. Karr

Ecology and Conservation: Humans in the Environment

Week/No Date	Discussion Topic	Required Reading or Other Activity	Student Assignment
I/1 Sep 28–29	Introductions section format and duties. Discuss food case study. Assign food and date	*COURSE TEXTBOOK: Uhl, C. 2004. <i>Developing Ecological Consciousness: Path to a Sustainable World</i> . Roman & Littlefield, Lanham, MD.	<ul style="list-style-type: none"> <li>• Search for and summarize information about your assigned food</li> </ul>
II/1 Oct 3–4	Discovering Home: Earth's Origin and History	*Uhl, Chapter 1	<ul style="list-style-type: none"> <li>• Submit card* (5 pts)</li> <li>• Participate in discussion</li> </ul>
II/2 Oct 5–6	Intelligent Life: Here? Elsewhere?	*Diamond, J. M. 1992. The Third Chimpanzee. Chapter 12, pp. 205–215. "Alone in a Crowded Universe"	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
III/1 Oct 10–11	Cultivating Awareness: A Living Planet	*Uhl, Chapter 2	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
III/2 Oct 12–13	Food Case Study Presentations (Group 1)	Group 1 (Veggies, Proteins, Dairy, and Other food groups) presents 1-minute summary of information on assigned foods	<ul style="list-style-type: none"> <li>• Submit summary report for your food.</li> </ul>
IV/1 Oct 17–18	Seeking Understanding: Earth's Web of Life	*Uhl, Chapter 3	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
IV/2 Oct 19–20	Food case study II Presentations (Group 2)	Group 2 (Proteins, Starches, and Buzz food groups) presents 1-minute summary of information on assigned foods	<ul style="list-style-type: none"> <li>• Submit summary report for your food.</li> </ul>
V/1 Oct 24–25	Nurturing Relationship: Intimacy with Life	*Uhl, Chapter 4	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
V/2 Oct 26–27	Lessons discussion: Studies of Individual Foods	Discuss the ecological, health, and economic consequences of culture, harvest, and consumption of diverse foods.	<ul style="list-style-type: none"> <li>• Prepare personal essay due Nov 2–3</li> </ul>
VI/1 Oct 31–Nov 1	Listening: Gauging the Health of Earth	*Uhl, Chapter 5	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>

\* Card indicates that each student is to prepare a 4 x 6 card of thoughts that emerged from the assigned reading. The card should include 3 numbered items: 1. What is the most important lesson of this reading in (A) science [to awaken the head] and (B) self reflection [to awaken the heart]? 2. What concerns or reservations do you have about the presentation in the reading? 3. What would you do to change or strengthen this reading? Cards will be collected each week by the teaching staff during the discussion of the assigned reading(s).

VI/2 Nov 2–3	Personal reflections: See focus question at right	What should the food-savvy college student know or demonstrate competence in before being awarded a diploma?	<ul style="list-style-type: none"> <li>• Submit food essay</li> </ul>
VII/1 Nov 7–8	Discernment: Deciphering the Causes of Earth's Breakdown	*Uhl, Chapter 6	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
VII/2 Nov 9–10	No sections Veterans' Day Nov 11		
VIII/1 Nov 14–15	Courage: Planetary Destabilization	*Uhl, Chapter 7	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
VIII/2 Nov 16–17	Integrating ecology and economics	Costanza, R. and 7 other authors. 2000. Managing our environmental portfolio. <i>BioScience</i> 50: 149-155.	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
IX/1 Nov 21–22	Story: Creating Meaning in a Time of Crisis	*Uhl, Chapter 8	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
IX/2 Nov 23-24	No sections Thanksgiving Day, Nov 24.		
X/1 Nov 28–29	Earth Charter Case Study	<ol style="list-style-type: none"> <li>1. Review Earth Charter Case Study document (E-reserve)</li> <li>2. Review Earth Charter (E-reserve)</li> <li>3. Optional: Examine web site at <a href="http://www.earthcharter.org">www.earthcharter.org</a></li> </ol>	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Discuss Earth Charter</li> <li>• Submit essay Dec. 2</li> </ul>
X/2 Nov 30– Dec 1	Creativity: Designing a Sustainable Society	*Uhl, Chapter 9	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
XI/1 Dec 5–6	Empowerment: Transforming Self, Transforming Society	*Uhl, Chapter 10	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>
XI/2 Dec 7–8	Connections and the future: Land use, energy, agriculture, and food	<p>*1. Foley, J. A. and 18 other authors. 2005. Global consequences of land use. <i>Science</i> 309: 570-574. .</p> <p>*2. Dias de Oliveira et al. 2005. Ethanol as fuel: Energy, carbon dioxide, and ecological footprint. <i>Bioscience</i> 55: 593-602.</p> <p>*3. Pimentel, D. and 4 others. 2005. Environmental, energetic, and environmental consequences of organic and conventional farming systems. <i>Bioscience</i> 55: 573-582.</p>	<ul style="list-style-type: none"> <li>• Submit card (5 pts)</li> <li>• Participate in discussion</li> </ul>