The Emergence and Influence of Ecology

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<tr>
<th>Course Information</th>
<th>Dr. Gavin Van Horn</th>
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<td>ENV 49-303-01 Olin 322 Tu/Th 9:30-10:45</td>
<td>108 KEW</td>
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<td>office hours: Tues 1-3, or by appointment</td>
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<td></td>
<td>office phone: 512.868.1959</td>
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<td></td>
<td><a href="mailto:vanhorng@southwestern.edu">vanhorng@southwestern.edu</a></td>
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Course Description

The word “ecology” (and the many usages of the prefix “eco-”) has entered – and sometimes saturated – various academic fields and popular discourse. Less well known, however, is that the science of ecology, which is sometimes referred to as the “subversive science” because of its suggestive nonanthropocentric perspective, has been anything but static. In this course, we will read deeply and refer often to the work of Aldo Leopold – who lived through and articulated many of the changing paradigms and implications of ecological science. We will also elucidate the historical antecedents as well as the ongoing influence of ecology as it has been adopted and understood by other academic fields of study and among environmentalists.

Course Objectives

Through in-depth reading and critical analysis of primary texts, students will:

- gain an appreciation for how ecology emerged as a science and the historical context that shaped its premises
- learn about key scientists and their work in the field of ecology
- learn about the importance of Aldo Leopold as a popularizer of ecology and its ethical implications
- trace and reflect upon the transdisciplinary influence of ecology and its various offshoots

Required Texts


Course Packet of other primary readings available online, at Segue course page
**Course Requirements**

**Participation (10% of final grade)**
Not only your presence in class but your deep engagement with the materials will make in-class discussions lively and productive. I expect you to make it a commitment to attend every class, both for your own personal learning and to contribute to the community of learners in the group. As you read for each week, write down questions and notes that can benefit our discussions.

**Field Reports (10% each; 20% of final grade)**
There will be several opportunities for outside-of-the-classroom events and/or field trips. Students will choose two of these events and write a short summary (2-3 pages) of their experiences in relation to course materials; these reports are due no later than one week following an event. Students may do more than two reports for extra credit. Opportunities for these reports will be announced in class and posted on the course website.

**Biographical Presentation (20% of final grade)**
Throughout the semester, on Thursdays, students (in two-person teams) will give a biographical presentation to the class. At the beginning of the semester, students will choose one historical figure from a list of persons who have contributed to or influenced the science of ecology. Students will research this individual’s historical context and the impact of their work on ecological studies, and then present their findings to the class (a sign-up sheet will be provided as well as further details about evaluation criteria during the second week of class).

**Exams (exam 1 – 20%; final exam – 30%)**
Two take-home exams will be given during the semester. Exam 1 is due February 16; exam 2 is due May 8.* Exams will be handed out at least a week prior to these due dates, and will consist of questions related to persons, concepts, and historical information in the reading materials.

*Because grades for seniors need to be turned in early for graduation purposes, in lieu of a take-home final, students who are seniors will do a short research paper (8-10 pages) that further explores one of the topics covered in the latter portion of the semester: the relationship between religion & ecology, environmental ethics/philosophy, sustainable agriculture, conservation biology, or restoration ecology. Non-seniors may also choose this option, as an alternative to the take-home exam, but must consult with me prior to April 22 to finalize their chosen topic.

**Other Considerations**

**Late Assignments and Participation:** Your participation is desired and necessary. Students are responsible for informing me, prior to the scheduled course time, if they will not be in class. If a student is absent for any class, it is his or her responsibility to contact me immediately for any handouts or assignments they have missed. *Late assignments will result in a ½ letter grade deduction for each day following the due date.* Extensions may be granted in extraordinary circumstances with the approval of the professor.

**Electronic Devices:** In the spirit of courtesy and to prevent distractions, all electronic devices must be turned off prior to class. This includes wireless internet devices. First-time violations will result in the student being asked to leave the class. In the case of repeated violations, the student’s overall grade will be lowered.
**Plagiarism**: Students should be aware of all aspects of the **Honor System** as presented in the Student Handbook. I encourage you to read the section on plagiarism carefully. Plagiarism of any kind will not be tolerated. If you have technical questions about this important topic, see [http://owl.english.purdue.edu/owl/resource/563/01/](http://owl.english.purdue.edu/owl/resource/563/01/) for additional help, or ask the professor directly.

**Disabilities**: Southwestern University will make reasonable accommodations for students with documented disabilities. To arrange accommodations students should contact the Access and Academic Resource Coordinator within the Center for Academic Success (Cullen Building, 3rd floor; phone 863-1286; email carterk@southwestern.edu). Students seeking accommodations should notify the Access and Academic Resource Coordinator at least two weeks before services are needed. It is the student’s responsibility to discuss any necessary accommodations with the appropriate faculty member.

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**Course Schedule**

**Module 1 ~ Origins**

*The foundation and formation of ecological thought and proto-ecological practice.*

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### Week 1 Introductions & Openings

**Tuesday, January 12**
- syllabus overview

**Thursday, January 14**
- Kemmerer, selections from *Gathering Moss*, pp. vi-13
- Lopez, “Apologia,” pp. 75-79

**Tuesday, January 19**
- Worster, “Science in Arcadia” and “The Empire of Reason,” pp. 1-56

**Thursday, January 21**
- online course packet:
  - Benson, “The Emergence of Natural History from Ecology,” pp. 59-62
  - selection from Linnaeus, “The Oeconomy of Nature” (1749), pp. 39-50 (hyperlinked)

**Tuesday, January 26**

**Thursday, January 28**
- online course packet:
  - Gatta, “Thoreau’s Imagination of Sacred Space at Walden,” pp. 127-142

**Tuesday, February 2**

**Thursday, February 4**
- online course packet:
  - Darwin, selections from:
    - [optional] *The Voyage of the Beagle*, “Galapagos Archipelago” (pp. 324-347)
### Module 2 ~ Climaxes, Circuits and Organisms

**The crystallization of early ecological concepts and its coming-of-age as a scientific field.**

#### Tuesday, February 9

#### Thursday, February 11
*take-home exam (handout)*

**online course packet:**
- Clements, “Nature and Structure of the Climax” (1936), pp. 252-284

#### Tuesday, February 16
*take-home exam due*

**online course packet:**

#### Thursday, February 18
- Worster, “The Value of a Varmint,” “Producers and Consumers,” and “Declarations of Interdependence,” pp. 256-338

### Module 3 ~ Land Health and the Land Ethic

*Aldo Leopold’s life coincided with many critical changes in the science of ecology. His A Sand County Almanac has since become a classic; it is worthy of deep reflection and demonstrates both the ongoing evolution of the science of ecology, and perhaps more significantly, the ways in which ecology is associated with discernment of healthy lands and the possibility of a holistic environmental ethic.*

#### Tuesday, February 23
- *A Sand County Almanac*, Part I

#### Thursday, February 25
- *A Companion to a Sand County Almanac*, chapters 1 & 3 (Meine and Nash)

#### Tuesday, March 2
- *A Sand County Almanac*, Part II

#### Thursday, March 4
- *A Companion to a Sand County Almanac*, chapters 5 & 6 (Tallmadge and Fritzell)

#### Tuesday, March 9
- *A Sand County Almanac*, Part III

#### Thursday, March 11
- *A Companion to a Sand County Almanac*, chapters 7 & 9 (Callicott)

**online course packet:**
- Leopold, “Conservation: In Whole or In Part?” (1944), pp. 310-319

### Spring Break (March 16 & 18)

### Module 4 ~ Cascades; or, Some Critters Are More Equal than Others

*Despite popular views to the contrary, ecology is not about egalitarian relationships between species. Cooperation and competition are both fundamental to the dynamics of ecosystem*
structure. A finding of increasing importance – for conservation purposes as well as scientific study – is the complex regulating roles that predators play.

**Tuesday, March 23**
- W. Stoltzenberg, “Arms of the Starfish” (pp. 6-26), “Forest of the Sea Otter” (pp. 51-63), “Ecological Meltdown” (pp. 84-99), “Valley of Fear” (pp. 134-55)

**Thursday, March 25**
- online course packet:

**Module 5 ~ Thinking in Wholes**

*In A Sand County Almanac,* Leopold lamented that philosophy and religion had not yet heard of conservation; without such a change in “internal” loyalties, affections and convictions, he believed the land suffered as merely a means to an economic end. Leopold might have been pleased to see the explosion of interest in ecology, and environmentalism generally, in the last forty years. This module explores the ways in which philosophers, religion scholars, and environmentalists, in various ways, have attempted to answer Leopold’s challenge to think holistically about conservation.

**Earthly Religion and Ecological Ethics**

**Tuesday, March 30**
- B. Taylor, *Dark Green Religion* (pp.13-102)

**Easter Holiday (Thursday, April 1)**

**Tuesday, April 6**
- B. Taylor, *Dark Green Religion* (pp.155-222)

**Thursday, April 8**
- Worster, “Healing the Planet” (pp. 342-387)

**Module 6 ~ Interweaving Nature and Culture**

*Breaking down the perception of human separateness from natural systems, many persons, some taking their cues directly from Leopold, have initiated creative partnerships in their local communities as a way to live respectfully with and on the land.***

**Sustainable Agriculture**

**Tuesday, April 13**
Module 7 ~ Mission-based Sciences

With the advent of widespread public concern about the environment, and the alarming rate of species extinction and habitat fragmentation, some scientists have explicitly begun to advocate on behalf of conservation issues. This section explores two fields that have pioneered such engaged forms of science: conservation biology and restoration ecology.

### Conservation Biology: The Urgency of Ecology

**Tuesday, April 20**
- Stoltzenberg, “Little Monsters’ Ball” (pp. 120-133), “Dead Creatures Walking” (pp. 168-183), “The Loneliest Predator” (pp. 184-201), “Epilogue” (pp. 202-218)

**Thursday, April 22 (Earth Day)**

- “Conservation Biology” in *Encyclopedia of Religion and Nature* (pp. 415-17)
- Meine, “The Once and Future Land Ethic”

### Restoration Ecology: Rebuilding Land (and Humans)

*take-home final exam (handout)*

**Tuesday, April 27**
- W. Jordan III, *Sunflower Forest* (Introduction, Ch.1, 2, & 4)

**Thursday, April 29**

*final papers due (just graduating seniors)*
- W. Jordan III, *Sunflower Forest* (Ch. 5 & 8)

**Final Exam: due May 8, by 11am**