

ENVS 202: Introduction to Environmental Studies: Natural Sciences

Version “1.0”

Course Information:

Meetings: MTWRF

10:00-11:50

204 Chapman Hall

CRN: 46399

Instructor Information:

Name: Shane Hall

Email: shaneh@uoregon.edu

Office: Columbia Hall 240

Office Hours: 30 min prior to and after class
and/or by appointment

Course Description

This course is a survey of the contribution of natural sciences to the study of the relationship between human beings and the natural environment. Natural sciences provide powerful tools for describing and understanding environmental issues, as well as a means for evaluating policy decisions that impact the human and more-than-human environment. While these tools are useful, they are also limited in their abilities to describe and ameliorate environmental problems. This class will test the strength and weaknesses of the natural sciences while exploring vital issues of environmental concern like climate change, habitat loss, toxics-exposure, extinctions, and agriculture. Theoretical perspectives covered in the course include ecology, climatology, environmental health and toxicology, environmental history, and citizen science. In a society that privileges specialized, scientific knowledge, how does a non-scientist comprehend and meaningfully engage in discussions informed by scientific inquiry and debate? This course is part of the three term core sequence in Environmental Studies and is required for Environmental Studies (but not Environmental Science) majors (and must be taken for a grade if you are a ENVS major). It is an introductory course, designed for first-years and sophomores, and satisfies university general education breadth requirements for natural sciences. ENVS 201, 202, 203 may be taken in any order.

Course Objectives

If you enthusiastically and critically engage in this class and successfully complete each assignment, by taking this course you will...

- Increase your familiarity with scientific concepts underlying selected environmental issues
- Gain a better understanding of how science works and who “does” science
- Generate and interpret quantitative and graphical information
- Think creatively and analytically
- Investigate environmental science issues pervading our lives
- Work to understand these issues and make critical decisions based on your understanding of the course materials as well as your own values

Required Texts

- *Environmental Science: Inquiry and Application*, Cunningham and Cunningham (6th edition¹)
- Additional articles available as PDF files on the Blackboard site for the course under “Course Readings.” **You must bring a printed copy of these readings to class for discussion.**

How Your Grade is Evaluated: (full descriptions of assignments on Black Board)

1. Classroom Citizenship and Course Journal: 15%
2. In-Class Quizzes: 15%
3. In-Class Group Presentation: 15%
4. Midterm: 15%
5. Scientific-Study Evaluation: 15%
6. Final Exam: 25%

A = 94-100 C+ = 77-79

A- = 90-93 C = 74-76

B+ = 87-89 C- = 70-73

B = 84-86 D+ = 67-69

B- = 80-83 D = 60-66

Overall Expectations:

What to expect from your instructor: You can expect me to work hard to help you learn and succeed in this course. Specifically, I'll be available to help you in and outside of class. I will communicate clear expectations, criteria, and feedback for your efforts, and demonstrate the value of course activities and requirements (always feel free to ask about why we're doing each activity or assignment), and guide you in the completion of tasks in a timely manner so you can demonstrate your achievement. I teach this course because I believe that that our education, at its best, should help us understand and act meaningfully in the world we live in. Understanding the principles of environmental science and how that science is (or could be) conducted is a powerful way to do just that. So I love talking about all the issues we'll be excavating over the next few weeks and I am here to help you explore these issues. If I don't know answers to your questions that you're asking, I'm positive that I can help you find those answers.

What your instructor expects from you: You are expected to be present for every class, complete class readings and assignments on time and in the manner required, check Blackboard announcements and your email regularly, and participate vigorously and often in class discussions and activities – meaning you will share your ideas openly, relate course concepts and skills to your interests and real world experiences, and work to synthesize information from a variety of sources. In addition, you are required to comply with the course policies (page 3) and ask me questions when things get confusing (and I guarantee they will, because confusion is the first step towards learning anything new).

All of us are expected to respect everyone's voice; listen to, read, reflect upon, and comment appropriately on each other's contributions; challenge each other to clarify our ideas; and encourage each other to deepen our mutual learning.

¹ I have ordered the sixth edition of *Environmental Science* (there are seven editions) so that you may purchase a used copy of the book from the Duck Store for a fraction of the cost of the current edition. If you cannot procure a sixth edition, an earlier edition may suffice; let me know if you get any editions besides the 6th so we may literally get on the same page.

Course Policies:

Attendance

We only have 19 classes! Your ability to learn and ability to earn a successful grade in this course is compromised by missing class. *Any* absence or repeated tardiness may affect your grade because all assignments are turned in at the start of class or are completed in class. **Your first absence is not penalized; each subsequent absence will result in a 5% reduction of your total grade.**

Academic Honesty

All work submitted in this course must be your own and be written exclusively for this course. The use of sources (ideas, quotations, paraphrases) must be properly documented. **Consistent, correct citation of sources is required, and failing to adequately cite source materials will result in a final grade of “F” for the course.** Refer to the summary of the Code of Student Conduct on the Office of Student Conduct and Community Standards website: <http://uodos.uoregon.edu/StudentConductandCommunityStandards/AcademicMisconduct/tabid/248/Default.aspx>.

Access

The University of Oregon is working to create inclusive learning environments. Please notify me in the first day or two of class if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You may also wish to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

A General Note on Communication

Due to the short, brutish nature of a summer course, we are all expected and required to perform at a ‘high-octane’ level. That being said, we are human. If you are struggling with material, faced suddenly with a crisis, succumb to the summer flu, are stalked by rogue nutria, etc. **please communicate with me** via email or in person so we can coordinate and ensure you are able to access fully a positive learning experience (and pass the class). Coming to me a week *after* an assignment is due to tell me that your house burnt down is an awfully long time to wait to talk about an extension. So promptly communicate, communicate, communicate.

Late Work

Because of the extremely compressed nature of this course, late work will not be accepted unless you seek and receive permission from the instructor **prior to the assignment’s deadline**. All deadlines are included in the syllabus, so it helps to study the schedule.

Brief Descriptions of Graded Work:

- 1. Classroom Citizenship and Course Portfolio (15%)**

You will prepare a course portfolio in a three-ring binder that reflects your engagement with the course readings, in-class lectures/discussions, and the field trip. This portfolio will include, among other materials, homework assignments and in-class notes. We'll discuss what good classroom citizenship means, and how to excel as a classroom citizen.
- 2. In-Class Quizzes (15%)**

These will be administered in the "pop" tradition. Short quizzes are designed to help you determine if you are comprehending nightly reading assignments. Quizzes are also a reward for keeping pace with the course workload and coming to class ready for discussion. You must be in class to take the quiz, and there will be between 3-5 quizzes.
- 3. Group Presentations (15%)**

You will work in groups of two to three to present a controversial, significant environmental issue that can be productively analyzed with environmental science. You will present your groups' research and thoughts to the class for 10 minutes, and answer questions/discuss your topic for an additional 10 minutes. We will form groups in week one, and you will propose a question in week two (as a group), and present in weeks three and four.
- 4. Mid-term Assignment (15%)**

You will produce an annotated bibliography over the July 4th weekend as your formal "mid-term" assignment that is to be completed individually and handed in Monday, July 8th. This will help your group presentation.
- 5. Scientific Study Evaluation (15%)**

You will look up a peer-reviewed, scientific study published within the last 10 years that pertains to your group presentation project. You will "decode" this primary research and evaluate the experiment design and conclusions of the author(s). You will write this two to three page analysis during the second week of class. We will discuss strategies for reading scientific research in week one and week two.
- 6. Final Exam (25%)**

Administered on the final day of class, this exam will test your knowledge, comprehension, and ability to apply and synthesize the course materials. The in-class quizzes, class discussions, readings, presentation, and written assignments will prepare you for the format of the exam.

Schedule of Class Topics, Readings and Assignments²:

***Note:** Bring all readings assigned to class each day. Come prepared with questions about the material. While we may not discuss all readings in class, each offers important perspectives that you will be responsible for in the in-class quizzes, midterm, and final.

Day	Topic:	Reading(s) [listed by author]	Large Assignment(s) due (daily questions/ exercises announced in class)
<u>Week 1</u>	Science as a Way of Knowing: Foundations of Environmental Science Key questions: What is environmental science? How is it done and who gets to do it? What are some fundamental tools for conducting or interpreting scientific study? How do the case-study readings show the needs and/or limitations of scientific perspectives?		
M1	Intro to the Intro to Environmental Studies: Natural Sciences.		In-class survey
T1	Foundations of Environmental Science: Ecological theory and geophysical cycles.	1. Cunningham & Cunningham (1-18) 2. Bright (12-23)	
W1	Life as we know it: ecology and evolution, ecosystems and global change	1. Cunningham & Cunningham (50-75) 2. Find a recent (short) news article about an environmental science issue that you find crucially important.	Form groups for Case Study Presentations (in-class)
R1	Doing scientific research and reading scientific studies Begin environmental history of PNW	1. Cunningham & Cunningham (25-49) 2. Cudmore (7-12) 3. Waring (55-62)	
F1	FIELD TRIP to Mt. Pisgah (Springfield). Leave from Onyx Bridge at 9:50am. We will return at noon.	1. Juntunen	Dress for the weather and walking on trails. Bring water, notebook, and Juntunen.

² Dates of specific lessons and readings subject to change. The due-dates of assignments are, however, more secure.

Week 2	Biomes and Biodiversity: Key questions: What is biodiversity, and how do scientists commonly measure it? How do we define ecosystem “health?” What are methods for protecting or restoring ecosystems?		
M2	Biomes and Biodiversity	1. Cunningham & Cunningham (96-112) 2. Kolb et al. (10-15)	
T2	Threats to biodiversity and ecosystem health: “Camus Trip” to Science Library w/ Dean Walton, sciences librarian	1. Cunningham & Cunningham (112-127) 2. Davis (153-154) 3. Morris (13-17)	
W2	Protecting and restoring biodiversity and ecosystem health	1. Cunningham & Cunningham (128-152) 2. Leopold (129-133)	Scientific Study Evaluation DUE
R2	Case Study: Salmonids in the Pacific Northwest	1. Licatowich (1-23) 2. Woody (1-2) 3. Jones, 2014	
F2	July 4th Class Cancelled: Do Midterm Assignment over prolonged weekend		Midterm Assignment over prolonged weekend
Week 3	Climate Change and Pollution: The Causes and Effects Key Questions: What specific effects does climate change pose to various humans and ecosystems? Who are the most vulnerable to climate change’s ill effects? Who benefit most from climate change? What causes anthropogenic climate change?		
M3	Atmosphere, weather, climate	1. Cunningham & Cunningham 200-215 2. <i>Habitable Planet</i> , Unit 2, Atmosphere (abridged)	Midterm Assignment DUE

T3	Measuring climate change	1. EPA website (link on BB) 2. <i>The Habitable Planet</i> , Unit 12, (1-26)	
W3	Effects of climate change	1. US Academy of Sciences and Royal Society (2-26) 2. Reading TBD for Case Study Presentation	Case Study Presentation
R3	Effects of climate change	1. Rohr et al. (270-277) 2. Research hometown/region. 3. Readings TBD for Case Study Presentation	Case Study Presentation Climate Hometown Homework DUE
F3	Case Studies: hydrocarbon extraction	Readings TBD	
Week4	Environmental Health and Toxicology		
M4	Kinds of “human environmental health” issues	1-3. Cunningham & Cunningham 188-199, 229-235, 257-262. 4. Crane-Murdoch (BB link)	Case Study Presentation
T4	“Street Science” and environmental justice	In-class film screening	Case Study Presentation EPA EJ Viewer Homework DUE
W4	“Trending” environmental issues in the news- TBA	Readings TBD	
R4	“Trending” environmental issues in the news- TBA Final Exam Review	No readings	
F4	Final Exam and Final Wrap-Up.		Final Exam in-class Course Portfolio DUE

