

Introduction to Environmental Problems

G&ES 135 (3 credits)

Fall 2011

When and Where Section 02: period 8, MWF 3:00-3:50, 133 ATS
Section 03: period 4, MWF 11:00-11:50, 152 ATS

Instructor James T. Hathaway, member of Association of PA State College & University Faculties (APSCUF). APSCUF is committed to promoting excellence in all that we do to ensure that our students receive the highest quality education.
office and phone: 325 ATS (go through 319 ATS), 724-738-2391
email address: james.hathaway@sru.edu

Office Hours MWF: 2:00-2:50, TTh, 3:15-4:30; feel free to see me at other times

Texts (required) J.R. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (Norton, 2000)
Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (Penguin, 2007)

Course Description

An introduction to some of the more crucial environmental problems and solutions for them.

Student Learning Outcomes (or goals)

Goals and outcomes are two sides of the same coin. Both involve reaching a desired level of achievement, with goals referring to a level of accomplishment you are trying to reach, while outcomes refer to a level of accomplishment that you have reached at the end of a process of striving.

- Demonstrate a clear understanding of the causes and implications of the major environmental problems we face today at local, regional, and global scales
- Recognize the science behind these issues as well as the economic, political, and social factors that influence environmental change and shape our responses to it
- Create an environmental literacy inventory for the place you call home
- Demonstrate how to apply a holistic framework for analyzing environmental issues
- Recognize which key changes are needed in energy use and policies, land use, education, and personal choices, to help our society move toward a sustainable future

Introduction to Environmental Problems is taught in the Department of Geography, Geology, and the Environment, and it directly relates to a departmental emphasis on human-environment interactions. It is the foundational course for the Bachelor of Science in Geography: Track in Environmental Studies.

Environmental Problems is also an enrichment course in the Global Community block of the Liberal Studies program. This course meets the intent of the Global Communities block, which is for students to gain knowledge and understanding of and respect for the historical and contemporary interconnections evolving among peoples, cultures, societies, and the environment in our national and global communities. Finally, SRU expects its graduates to achieve the eight University Outcomes for Student Learning and Development. Solving environmental problems involves analyzing the connections between our physical and biological support systems on the one hand and our political and economic institutions on the other. Therefore our course dovetails well with these two content-oriented University Outcomes:

- Global Interdependence: act with an understanding of the cultural, socio-economic, and biological interdependence of planetary life.

- **Social Awareness and Civic Responsibility:** use knowledge of evolving human institutions and of diverse cultural and historical perspectives to interact effectively in a variety of social and political contexts.

As we work toward understanding environmental issues we will also engage the two skill-oriented University Outcomes shown below.

- **Communication:** communicate effectively in speech and in writing, using appropriate information sources, presentation formats, and technologies.
- **Critical Thinking and Problem Solving:** locate, analyze, synthesize, and evaluate information and ideas from multiple perspectives—mathematical, scientific, and humanistic. Apply this information literacy to contemporary challenges.

Grading and Attendance

The components of your grade and important dates are shown below. Methods of evaluation include short written quizzes with time limits, several types of class participation, and longer research projects but there are no exams and no objective forms of evaluation (e.g., true/false or multiple choice questions). I believe that you can best learn, communicate, and apply your knowledge of environmental issues by telling stories, arguing cases, and conducting research. The course withdrawal deadline (grade of “W”) is November 9.

Methods of evaluation	Point total	Comments/dates
Quizzes	250 points	The maximum score for each quiz is 100. The average score of all your quizzes is applied as a percentage of 250 points (e.g., at the end of the semester, an average of 85 will earn you 212.5 points)
Participation	150	See below
Big Here project	400	It's due at class time, November 28, but you'll get a 15-point bonus if you submit it by class time, November 21
Analyzing Environmental Issues project	200	December 12
Course total	1000	900-1000 = A, 800-899 = B, 700-799 = C, 600-699 = D, below 600 = F

Quizzes. For the quizzes, you have about eight minutes to write a five- or six-sentence paragraph on some general topic from the reading assignment or the PowerPoint presentation. The quizzes are open notes (handwritten) but not open book. In grading the quizzes I look to see if the paragraph; i.e., a sequence of lucid sentences that are all related to a single topic; tells a coherent story or argues a cogent case. The paragraph should have

- a topic sentence that states the main or controlling idea,
- three or four supporting sentences—they develop the controlling idea, using facts, arguments, analysis, examples, and other information and
- a concluding sentence—it establishes the connections between the information discussed in the body of the paragraph and the paragraph's controlling idea.

Here's another way to think about the three conditions above: the topic sentence makes a claim; the supporting sentences provide data to support the claim; and the concluding sentence is where you show your creativity, because here you link the data to the claim. Thus the concluding statement should not be a restatement of the topic sentence. If these three conditions are met, you would receive an A for five or six quality sentences, a B for three or four quality sentences, and a C for one or two.

Big Here Project. This 34-question “environmental literacy” project has detailed instructions which you will receive later, but here's a description from its creator, “You live in the big here. Wherever you live, your tiny spot is deeply intertwined within a larger place, imbedded fractal-like into a whole system called a watershed, which is itself integrated with other watersheds into a tightly interdependent biome. At the ultimate level,

your home is a cell in an organism called a planet. All these levels interconnect. What do you know about the dynamics of this larger system around you? Most of us are ignorant of this matrix. But it is the biggest interactive game there is. Hacking it is both fun and vital.” Almost all questions require answers of two paragraphs or less. Students have the option of writing their own environmental literacy question for up to 10 bonus points. It would be number 34 on your list..

Analyzing Environmental Issues project. This 12-question project provides a framework for students to analyze an environmental issue. Instructions will be provided later, but the idea is for students think about the complexities of environmental issues from the perspectives of various stakeholders. Most of the questions can be answered with one paragraph, and the project has a maximum length of 2,500 words. Each answer should be carefully researched and information sources must be properly cited.

Participation. I grade class participation mostly on oral participation and on discussion questions that you write. Your comments and questions about the readings are an important source of participation points. Quality and consistency are what count the most, and I do distinguish between quantity and quality. I am also impressed by student comments showing that you have listened carefully to other students and that you can build on what they say. I do adjust scores upward because of the relatively large size of Environmental Problems classes.

On some days I will ask you to submit both a discussion question and a connection point. The question should be a discussion starter that will help students better understand the content or argument of a reading as opposed to a question about information recall such as a date or location. The list of ten critical thinking skills overleaf will help you write questions. On those days that I ask you to submit a written question I will also ask you to submit a connection point, i.e., an insight showing a connection of the reading to other texts or past or current events. See the synthesis critical thinking skill for help on this. Your connection point is improved by the inclusion of a citation for the text or event. The maximum length is two sentences for discussion questions and two sentences (not including citations) for connection points. Discussion questions and connection points must be typed. The average score of all your discussion questions and connection points is applied as a percentage of 75 points.

Attendance Policy. Attendance affects your grade. Students with excellent attendance (one or no unexcused absences) will receive 10 bonus points. On the other hand, each unexcused absence in excess of two will result in a 20-point loss (e.g., a student with four unexcused absences will have 40 points deducted from his or her course total). An excused absence requires some form of written documentation. If you miss a class, you are responsible for getting the homework assignment from another student or me and for completing it by the due date. Students who are late to class should see me afterwards to ensure that they were not marked absent.

Course Management

I will use Desire2Learn to make announcements, to make materials available, and to post grades. Everyone registered for the course is automatically enrolled in D2L.

Academic Integrity

The work that you submit must be your own, for both moral and legal reasons. Cheating will be met with stiff penalties, beginning with a “0” for the work involved. The sanctions for academic dishonesty under listed under SRU’s Academic Policies at <http://catalog.sru.edu/content.php?catoid=20&navoid=409>.

Critical Thinking Skills

We don't need no thought control, The Wall, Roger Waters

Critical thinking comprises a number of overlapping abilities or strategies. I've listed some below (for another set of definitions, see this web site: http://www.criticalthinking.org/aboutCT/define_critical_thinking.cfm).

1. **Observes.** One must both look closely and remain open to hidden or unexpected explanations to think critically. Gathering information in a systematic manner can increase one's willingness to accept evidence even if it contradicts one's previous opinions. The recall and comprehension (putting what is recalled in one's own words) of what one sees are important steps in critical thinking.
2. **Analyzes.** In order to truly understand one must break down material into its component parts so that its organizational structure may be understood. In other words, analysis involves knowing the relationships between parts and recognizing the organizational principles that connect them.
3. **Recognizes ambiguity.** Ambiguity means having two or more meanings. Issues are often complex, and that complexity only emerges from confusion if one is able to recognize ambiguity.
4. **Comes to grips with complexity.** Here one recognizes that there are usually no easy answers to important issues or questions. Complex issues do not lend themselves to simple single-cause explanations.
5. **Identifies assumptions.** All reasoning is based on assumptions. An assumption is something taken for granted, i.e., accepted as true without proof, by a thinker but often left unstated. Since assumptions are not mentioned and thus not backed up with evidence, they offer insight into the validity of our own arguments as well as those of others.
6. **Assumes perspective of another.** You may have heard the phrase "walk a mile in their shoes." This saying implies a willingness to explore ideas contrary to one's own beliefs and the ability to see problems and issues in a broader perspective than one's own culture or interest group.
7. **Adopts multiple perspectives.** To adopt multiple perspectives means to see a problem from many angles. There are as many perspectives as there are people, but several important categories include race, class, and gender. Adopting multiple perspectives allows one to anticipate counterarguments and to address them even before one's position is questioned. Multiple perspectives can also lead one to reconsider one's own position.
8. **Synthesizes.** Synthesis puts parts together to form a new whole. It is the opposite of analysis. Synthesis involves seeing connections among various and seemingly unrelated facts and experiences (e.g., different texts, different courses, different personal experiences, or current events, etc.) Creativity is an important part of synthesis, since the connections one finds may be original.
9. **Recognizes bias.** A goal of critical thinking is fair mindedness. One tests one's own impressions in all ways possible. Recognizing bias helps one to see their own assumptions and thus to reduce personal prejudice and to recognize it in others.
10. **Evaluates.** To evaluate one must judge the worth or significance of something and to judge one must have definite criteria. Such criteria may be internal (e.g., how effectively is the purpose carried out?) or external (e.g., why might this work be of interest to someone? How does it compare to other works in its field?)

Course Outline	required attendance days ¹	date	week
1. Introduction			1
a. Lecture: the basics	yes	8/29	
b. Slide presentation: the greening of Pittsburgh	yes	8/31	
c. Discussion: McNeill, economy, population, energy (preface, chapter 1)	quiz	9/2	
Labor Day—no class		9/5	2
<i>The Big Here: introduction to environmental literacy project</i>	yes	9/7	
<i>The Big Here, continued</i>		9/9	
Part One: Environmental Issues			3
2. Land			
a. Slide presentation: “mountaintop removal” coal mining		9/12	
b. Discussion: McNeill, the crust of the earth (chapter 2)	quiz or dq	9/14	
<i>The Big Here, continued</i>		9/16	4
3. Air			
a. Discussion: McNeill, urban air pollution (chapter 3)	quiz or dq	9/19	
<i>Analyzing Environmental Issues: introduction to the project</i>	yes	9/21	
<i>Big Here/Analyzing Environmental Issues, continued</i>		9/23	5
b. Slide presentation: ozone depletion and the Montreal Protocol		9/26	
c. Discussion: McNeill, regional and global atmospheric issues (chapter 4)	quiz or dq	9/28	
<i>Big Here/Analyzing Environmental Issues, continued</i>		9/30	
4. Water			6
a. Discussion: McNeill, water use and water pollution (chapter 5)	quiz or dq	10/3	
b. Discussion: McNeill, water depletions, dams, and diversions (chapter 6)	quiz or dq	10/5	
<i>Big Here/Analyzing Environmental Issues, continued</i>		10/7	
Fall break		10/10	7
5. Life			
a. Discussion: McNeill, food (chapter 7)	quiz or dq	10/12	
<i>Big Here/Analyzing Environmental Issues, continued</i>		10/14	
b. Discussion: Pollan, corn (introduction, chapters 1-3)	double quiz	10/17	8
c. Film: Our Daily Bread	yes	10/19	
d. Discussion: Pollan, corn-based food (chapters 4-7)	double quiz	10/21	
e. Discussion: Pollan, grass (chapters 8-10)	double quiz	10/24	9
f. Film: Our Daily Bread	yes	10/26	
g. Discussion: Pollan, grass-based food (chapters 11-14)	double quiz	10/28	
h. Slide presentation: Pennsylvania’s deer problem		10/31	10
i. Discussion: McNeil, forests, fish, and invasions (chapter 8) and Terborg (handout)	quiz or dq	11/2	
<i>Big Here/Analyzing Environmental Issues, continued</i>		11/4	

¹ The attendance policy is in effect for days marked “yes,” “quiz or dq,” or “double quiz.” “Dq” refers to discussion question and connection point.

Part Two: Drivers of Change			
6. Population and urban growth			
a. Slide presentation: population growth		11/7	11
b. Discussion: McNeill, more people, bigger cities (chapter 9)	quiz or dq	11/9	
<i>Big Here/Analyzing Environmental Issues, continued</i>		11/11	
7. Fuels, technology, and economics			
a. Slide presentation: conventional energy challenges		11/14	12
b. Discussion: fuels, tools, economy (chapter 10)	quiz or dq	11/16	
<i>Big Here/Analyzing Environmental Issues, continued</i>		11/18	
c. Film: Homo Toxicus	yes	11/21	13
Thanksgiving break		11/23	
Thanksgiving break		11/25	
8. Ideas and Politics			
a. Slide presentation: moving from a linear economy toward a cyclical one		11/28	14
b. Discussion: McNeill, ideas and politics (chapter 11)	quiz or dq	11/30	
<i>Analyzing Environmental Issues, continued</i>		12/2	
9. So What?			
a. Slide presentation: campus sustainability		12/5	15
b. Discussion: McNeill: Epilogue (chapter 12)	quiz or dq	12/7	
<i>Analyzing Environmental Issues, continued</i>		12/9	
c. Concluding comments		12/12	16
Final Exam Period			
Bonus quiz, make up work; period 4, 10:30-12:30		12/16	
Bonus quiz, make up work; period 8, 1:00-3:00		12/16	