

**GEOL 1130 Intro. to Environmental Science**  
**Spring, 2006**  
**Location: LSci 175**  
**Time: Tues, Thurs 11AM**

**Instructor: Dr. Christina Gallup**  
**Office Hours: Tues 1-3 PM**  
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**Course Description:** We will explore Earth's physical and biological systems and human interaction with the environment. This will include coverage of: climate, rocks, soils, ecosystems, human population, land use, energy use and its consequences, environmental policy, air and water pollution, and conservation issues. (2 hrs lect, 2 hrs lab) This course fulfills the Lib. Ed. Category 4 requirement as well as the international perspective requirement (through discussion of human demography and global environmental issues).

**Course Goals:** To give you (the student) a sense of how the world around you works and how your existence affects the Earth and the organisms living on it. Given this goal, the focus of the course is on understanding concepts, not on memorizing terminology. Some terminology is necessary, but it will be important in the context of a broader concept.

**Course Expectations:** You are expected to have done the reading assignments before each lecture and may be called upon during lecture to answer questions from the reading. You should use the lectures and the Chapter questions listed in the syllabus as a guide for what is important to study from the reading for the exams. Exams (see below) are designed to give you an opportunity to convey what you have learned.

**Book:** Environmental Science: A Global Concern, Cunningham and Saigo, Eighth Edition. Available as used textbook, electronic version, or new textbook in the Ninth edition.

Date	Subject	Text Readings 9 <sup>th</sup> Ed.	Chapter Q's/ Readings	Labs
	HOW THE EARTH FUNCTIONS		R = Review CT = Critical Thinking	Note: There is no lab during weeks with exams!
Tues, Jan 17	Five most pressing issues regarding Sustainability of Human life on Earth	16-33	Ch 1: R: 3,5-8; CT: 4,6.	I. Earth on Edge: Bill Moyers Reports
Thur, Jan 19	Air, Climate, and Weather Today	322-330	Ch 15: R: 2,3,5-7; CT: 3,6.	
Tues, Jan 24	Geologic perspective on Climate	330-333	Ch 15: R: 4; CT: 3,5./ <b>Crowley*</b>	II. Weather and Climate; scientific graphs
Thur, Jan 26	Geologic perspective on Climate			
Tues, Jan 31	Hydrologic Cycle	372-377	Ch 17: R: 5-7,9,10; CT: 1-3.	III. Groundwater
Thur, Feb 2	Rock Cycle	301-306	Ch 14: R: 1-5; CT: 2-3.	
Tues, Feb 7	What is Soil?	192-194	Ch 9: R: 7,8; CT: 5.	IV. Soils and Carrying Capacity
Thur, Feb 9	The magic of water; Nutrient cycles	56, 66-73	Ch 3: R: 1-3; CT: 3, 9.	
Tues, Feb 14	<b>EXAM</b>			<b>NO LAB</b>
Thur, Feb 16	Species to Ecosystems: What lives where?	100-113	Ch 5: R: 1-8; CT: 1.	
Tues, Feb 21	Why things live where they do	76-98	Ch 4: R: 1,2,4,5,7-10; CT: 2-4.	V. Natural Selection
Thur, Feb 23	Why things live where they do			
	PEOPLE AND THE ENVIRONMENT			
Tues, Feb 28	Population Growth	118-128	Ch 6: R: 1-4; CT: 1-3,6,7.	VI. World Population
Thur, Mar 2	Population Growth			
Tues, Mar 7	Human Demography	134-156	Ch 7: R: 1-4,8,9; CT: 1-7.	VII. Water Wars: Closer to home than we think?
Thur, Mar 9	Land Use: Water	378-391	Ch 17: R: 1,3,4; CT: 4-9.	

Spring Break				
Tues, Mar 21	Land Use: Forests	252-266	Ch 12: R: 1-6; CT: 1-4.	<b>VIII. People and Forests</b>
Thur, Mar 23	Land Use: Agriculture	194-207	Ch 9: R: 9,10; CT: 4,6-9.	
Tues, Mar 28	Human Nutrition	182-191	Ch 9: R: 5,6; CT: 1-3.	<b>NO LAB</b>
Thur, Mar 30	<b>EXAM</b>			
	<b>ENERGY TO POWER THE WORLD</b>			
Tues, Apr 4	Photosynthesis/Non-Renewable Sources: Coal	58-62; 422-429	Ch 3: R: 6-8; CT: 4. Ch 19: R: 1-3, 5.	<b>IX. Oil Drilling and Hubbert Curves</b>
Thur, Apr 6				
Tues, Apr 11	Non-Renewable Sources: Oil, Natural Gas	429-434	Ch 19: R: 4; CT: 4,8./ <b>Scientific American</b>	<b>X. The Record of Climate Change</b>
Thur, Apr 13	Non-Renewable Sources: Oil, Natural Gas			
Tues, Apr 18	Renewable/Alternative Sources: Hydro, Solar, Nuclear	434-472	Ch 19: R: 7,10; CT: 2,3,5-7. Ch 20: R: 1,3-10; CT: 1-8.	<b>XI. Waste Disposal</b>
	<b>POLLUTION</b>			
Thur, Apr 20	Global Warming - Evidence, Remedies?	333-340	Ch 15: R: 8-10; CT: 2,3,8,9./ <b>Edmonds*</b>	
Tues, Apr 25	Global Warming - Evidence, Remedies?			<b>XII. Struggling to Maintain Biodiversity</b>
Thur, Apr 27	Understanding Past Climates: Global Warming in Perspective			<b>Extra Credit Book Reviews Due</b>
Tues, May 2	Other critical environmental issues facing humanity	504-514	Ch 22: R: 3,5,10; CT: 5,7,8.	<b>XIII. Globalization; Think locally act globally</b>
Thur, May 4	Summing it all up!	562-582		
<b>MON, MAY 8</b>	<b>FINAL EXAM 2-4 pm</b>			

\* Can be found on the web site <http://www.gcric.org/CONSEQUENCES/>. Crowley's is in Vol. 2, No. 1; Edmonds' is in Vol. 5, No. 1.

## LABS:

The labs are in Chem 207, are run by the TAs, and will meet every week, including the first week of class, except when we have exams. If you miss a lab, please contact your TA about making it up, but realize that you may not get full points on the lab and if you miss more than 2 labs, you will get a zero for the semester (see your Lab syllabus for details). The TA's contact information is as follows:

### Lab

Section	TA	email	office, phone	office hours
2,5,9	Erin Endsley	<a href="mailto:eendsley@d.umn.edu">eendsley@d.umn.edu</a>	202 Heller Hall, 726-7464	Mon 11-12 Tues 10-11
6,7,8	Nick Freiberger	<a href="mailto:freib012@d.umn.edu">freib012@d.umn.edu</a>	202 Heller Hall, 726-7464	W: 3-4
3,4,91	Valerie Gamble	<a href="mailto:gamb0039@d.umn.edu">gamb0039@d.umn.edu</a>	202 Heller Hall, 726-7464	Mon 8-9 Tues 1-2

## GRADING:

Exam I	20%
Exam II	20%
Quizzes	10%
Lab	25%
Final Exam	25%

## **EXAMS:**

Exams are a combination of short answer, fill in the blank, and true/false. There are no multiple choice questions. By using a short-answer/fill-in-the-blank format, I give you the opportunity to show what you have learned. This means that you need to understand and be able to put in your own words each of the concepts/topics discussed in class. For this reason, many students find the exams quite challenging. **To study for the exams, 1) go over the power point presentations and make sure you understand each of the topics discussed in class and the figures used to convey those topics and 2) read the assigned pages in the book and use the listed chapter questions to ensure that you understand and have thought about the reading.**

## **EXTRA CREDIT:**

### **Quizzes and Exams**

Occasionally, the quizzes will have extra credit questions. These extra credit questions will be about recent articles in the Duluth News Tribune that are about environmental issues. Exams will have an extra credit question about local environmental issues.

### **Book Reports**

For students who have an avid interest in environmental science, you can get extra credit by reading Jane Goodall's new book "Harvest of Hope." To get extra credit, a 5 page book report must be turned in by Thursday, April 27th. For an excellent book report (A), the student's course grade will be raised by a half grade (i.e. a B+ will become an A-). See the course website for further details about the format and content of the report.

## **POLICIES:**

1. All enrolled students are expected to attend class.
2. Exams will be a combination of true/false, fill in the blank, and short answer. Quizzes will be unannounced and will be at the beginning of the class period. If you are late to class or absent, you cannot make up the quiz – NO EXCEPTIONS. To allow for students being ill, etc., one quiz will be dropped at the end of the semester. Regular quizzes will consist of a few simple questions on the material from the previous lecture. One question may be from the Environmental Study Partner.
3. Exams cannot be made up unless the student has made arrangements at least two weeks ahead of time in anticipation of an absence that is excused according to the policies in the University of Minnesota Duluth 2005-2007 Catalogue. Make-up exams will be short answer and essay questions. Please consult me at the BEGINNING of the semester about any religious observances you have that are in potential conflict with Exams, Quizzes, and/or Labs.

*Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform the instructor at the beginning of the semester. Adaptation of methods, materials, or testing may be made as required to provide equitable participation.*