**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  
Office Location: 219 Heller Hall  
Phone: 726-8984  
E-Mail: cgallup@d.umn.edu  
Web Site: http://www.d.umn.edu/~cgallup/

**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.


<table>
<thead>
<tr>
<th>Date</th>
<th>Subject</th>
<th>Text Readings 9th Ed.</th>
<th>Chapter Q’s/Readings</th>
<th>Labs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>HOW THE EARTH FUNCTIONS</strong></td>
<td></td>
<td>R = Review CT = Critical Thinking</td>
<td>Note: There is no lab during weeks with exams!</td>
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<tr>
<td>Tues, Jan 17</td>
<td>Five most pressing issues regarding Sustainability of Human life on Earth</td>
<td>16-33</td>
<td>Ch 1: R: 3,5-8; CT: 4,6.</td>
<td>I. Earth on Edge: Bill Moyers Reports</td>
</tr>
<tr>
<td>Thur, Jan 19</td>
<td>Air, Climate, and Weather Today</td>
<td>322-330</td>
<td>Ch 15: R: 2,3,5-7; CT: 3,6.</td>
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<tr>
<td>Tues, Jan 24</td>
<td>Geologic perspective on Climate</td>
<td>330-333</td>
<td>Ch 15: R: 4; CT: 3,5./Crowley*</td>
<td>II. Weather and Climate; scientific graphs</td>
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<td>Thur, Jan 26</td>
<td>Geologic perspective on Climate</td>
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<tr>
<td>Tues, Jan 31</td>
<td>Hydrologic Cycle</td>
<td>372-377</td>
<td>Ch 17: R: 5-7,9,10; CT: 1-3.</td>
<td>III. Groundwater</td>
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<tr>
<td>Thur, Feb 2</td>
<td>Rock Cycle</td>
<td>301-306</td>
<td>Ch 14: R: 1-5; CT: 2-3.</td>
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<tr>
<td>Tues, Feb 7</td>
<td>What is Soil?</td>
<td>192-194</td>
<td>Ch 9: R: 7,8; CT: 5.</td>
<td>IV. Soils and Carrying Capacity</td>
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<tr>
<td>Thur, Feb 9</td>
<td>The magic of water; Nutrient cycles</td>
<td>56, 66-73</td>
<td>Ch 3: R: 1-3; CT: 3,9.</td>
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<tr>
<td>Tues, Feb 14</td>
<td>EXAM</td>
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<td>NO LAB</td>
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<tr>
<td>Thur, Feb 16</td>
<td>Species to Ecosystems: What lives where?</td>
<td>100-113</td>
<td>Ch 5: R: 1-8; CT: 1.</td>
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<tr>
<td>Tues, Feb 21</td>
<td>Why things live where they do</td>
<td>76-98</td>
<td>Ch 4: R: 1,2,4,5,7-10; CT: 2-4.</td>
<td>V. Natural Selection</td>
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<tr>
<td>Thur, Feb 23</td>
<td>Why things live where they do</td>
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<td></td>
<td><strong>PEOPLE AND THE ENVIRONMENT</strong></td>
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<td>Tues, Feb 28</td>
<td>Population Growth</td>
<td>118-128</td>
<td>Ch 6: R: 1-4; CT: 1-3,6,7.</td>
<td>VI. World Population</td>
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<tr>
<td>Thur, Mar 2</td>
<td>Population Growth</td>
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<tr>
<td>Tues, Mar 7</td>
<td>Human Demography</td>
<td>134-156</td>
<td>Ch 7: R: 1,4,8,9; CT: 1-7.</td>
<td>VII. Water Wars: Closer to home than we think?</td>
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<tr>
<td>Thur, Mar 9</td>
<td>Land Use: Water</td>
<td>378-391</td>
<td>Ch 17: R: 1,3,4; CT: 4-9.</td>
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</tbody>
</table>
**Spring Break**  
Tues, Mar 21  
Land Use: Forests  
252-266  
**VIII. People and Forests**

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.  
**NO LAB**

Thur, Mar 30  
**ENERGY TO POWER THE WORLD**

Tues, Apr 4  
Photosynthesis/Non-Renewable Sources: Coal  
58-62; 422-429  
**IX. Oil Drilling and Hubbert Curves**

Thur, Apr 6

Tues, Apr 11  
Non-Renewable Sources: Oil, Natural Gas  
429-434  
Ch 19: R: 4; CT: 4,8./Scientific American  
**X. The Record of Climate Change**

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: 1-6.  
**XI. Waste Disposal**

**POLLUTION**

Thur, Apr 20  
Global Warming - Evidence, Remedies?  
333-340  
Ch 15: R: 8-10; CT: 2,3,8,9./Edmonds*  
**XII. Struggling to Maintain Biodiversity**

Tues, Apr 25  
Global Warming - Evidence, Remedies?  
**XII. Struggling to Maintain Biodiversity**

Thur, Apr 27  
Understanding Past Climates: Global Warming in Perspective 
**Extra Credit Book Reviews Due**

Tues, May 2  
Other critical environmental issues facing humanity  
504-514  
Ch 22: R: 3,5,10; CT: 5,7,8.  
**XIII. Globalization; Think locally act globally**

Thur, May 4  
Summing it all up!  
562-582

**MON, MAY 8  FINAL EXAM 2-4 pm**


**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:

<table>
<thead>
<tr>
<th>Lab Section</th>
<th>TA</th>
<th>Office Email</th>
<th>Office, Phone</th>
<th>Office Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,5,9</td>
<td>Erin Endsley</td>
<td><a href="mailto:endsley@d.umn.edu">endsley@d.umn.edu</a></td>
<td>202 Heller Hall, 726-7464</td>
<td>Mon 11-12</td>
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<td>Tues 10-11</td>
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<tr>
<td>6,7,8</td>
<td>Nick Freiberger</td>
<td><a href="mailto:freib012@d.umn.edu">freib012@d.umn.edu</a></td>
<td>202 Heller Hall, 726-7464</td>
<td></td>
</tr>
<tr>
<td>3,4,91</td>
<td>Valerie Gamble</td>
<td><a href="mailto:gamb0039@d.umn.edu">gamb0039@d.umn.edu</a></td>
<td>202 Heller Hall, 726-7464</td>
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**GRADING:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Exam I</td>
<td>20%</td>
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<tr>
<td>Exam II</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Lab</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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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.*