GEOL 335, PROCESSES OF GLOBAL ENVIRONMENTAL CHANGE

Fall 2014
Lecture
Lecture: Tuesday, Thursday 08:30PM - 09:45AM, JONES 104
Laboratory
SECTION H01: Wednesday 10:50AM - 1:50PM, EWSC 102
SECTION H02: Friday 09:40AM - 12:40PM, EWSC 102
Final Exam: Tuesday, December 09 - 09:00 am

INSTRUCTOR
Venkat Lakshmi, Professor, Department of Earth and Ocean Sciences
Office: EWS 407; (803)-777-3552; vlakshmi@geol.sc.edu
Best way to contact the instructor is via email

TEACHING ASSISTANT AND LABORATORY INSTRUCTOR
Bin Fang, Department of Earth and Ocean Sciences, University of South Carolina
Office: EWS 411-B; bfang@geol.sc.edu

PRINCIPAL TEXTS
- Climate Change Impacts in United States; United States National Climate Assessment, US Global Change Program, nca2014.globalchange.gov

TOPICS TO BE COVERED AND DESCRIPTION
The science of global change and its relation to the hydrosphere, atmosphere, biosphere and lithosphere will be studied in part one of the course. In part two, we will study the policy ramifications of climate change and its implementation.
**GRADING** (see class attendance policy below):
- Class participation and (surprise) quizzes: 10%
- Book Report (September 23 2014): 10%
- Mid-term exam (October 09 2014): 15%
- Semester-long Project – written and oral presentation: 20%
- Final exam* (December 09 2014): 15%
  *Can include material from the class reports
- Lab reports and assignments: 30%

**CLASS ATTENDANCE POLICY**
Only three absences due to sickness or extreme extenuating circumstances will be allowed with one letter grade taken off for each additional unexcused absence. Surprise quizzes will help determine “regular” students. 
*Reading assignments are extremely important and class discussion on these readings will form the basis for the 20% grade (listed first above)*

**BOOK REPORT**
During the semester, you will be required to read a book on global change. The book can be on the scientific, social, economic aspect of climate change. After reading the book, you will be required to write a short and concise 3-page book report. This book report is due September 23.

**SEMESTER-LONG PROJECT**
A semester-long project will be a central part of this course. The project will consist of two parts, a written research report based on your research, complete with illustrations and references, and PowerPoint oral report presented to the entire class.

*The written report is due on December 5, 2014.* The report must be at least 5 pages long, typed, double spaced, 12-pt font; not included in this length are illustrations and references (important parts of the report). Internet references may be used but must be valid sources and complete Web addresses must be given.

A 15-minute oral presentation will be done by each student based on the project topic that will be decided on the basis of consultation with the instructor and this is used as the basis for the written research paper. The topics may include scientific, economic, political and social aspects of global change. More details will be made available at a later time in the semester including help with learning power point.

**LEARNING OUTCOMES**
1. Basic understanding of weather and climate.
2. Understanding and appreciation of the integrated nature of the earth system.
3. Introduction to issues – scientific and societal in the climate change context.
4. Keys for a sustainable future: understanding the global climate related problems and searching for solutions.
LABORATORY SESSIONS
The laboratory periods will be used both as laboratory sessions for either hands-on or computer-based projects to expand upon topics being covered in the class periods or as question-answer periods (recitation sessions) during which students will have an opportunity to ask the lab instructor, for help with material covered during the class or labs.

Please bring your laptop (wireless capable) to the Laboratory class.

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<thead>
<tr>
<th>LAB</th>
<th>DATE</th>
<th>TOPIC</th>
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<tbody>
<tr>
<td>1</td>
<td>August 27, 29</td>
<td>Introduction to Microsoft Excel</td>
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<tr>
<td>2</td>
<td>September 3, 5</td>
<td>Long-term climate change</td>
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<td>3</td>
<td>September 10, 12</td>
<td>Earth’s magnetic field, continental drift and Seafloor spreading</td>
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<td>4</td>
<td>September 17, 19</td>
<td>Greenhouse effect</td>
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<td>5</td>
<td>September 24, 26</td>
<td>Global warming and the greenhouse effect: Proposed solutions</td>
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<td>6</td>
<td>October 1, 3</td>
<td>Hurricanes</td>
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<td>October 8, 10</td>
<td>Review for Midterm (EWS 407)</td>
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<td>7</td>
<td>October 15, 17</td>
<td>Great Sumatra earthquake and tsunami</td>
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<td>October 22, 24</td>
<td>No lab class</td>
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<td>8</td>
<td>October 29, 21</td>
<td>Atmospheric and ocean circulation</td>
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<td>9</td>
<td>November 5, 7</td>
<td>Make up class</td>
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<td>10</td>
<td>November 12, 14</td>
<td>Project presentations</td>
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<td>11</td>
<td>November 19, 21</td>
<td>No lab class? New lab on Remote Sensing?</td>
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<td>12</td>
<td>November 26, 28</td>
<td>No Lab class Thanksgiving</td>
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<td>13</td>
<td>December 3, 5</td>
<td>Project presentations</td>
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