GEOL 335, PROCESSES OF GLOBAL ENVIRONMENTAL CHANGE

Fall 2016

Lecture
Lecture: Tuesday, Thursday 08:30AM - 09:45AM, JONES PSC 205

Laboratory
SECTION H01: Wednesday 10:50AM - 1:50PM, EWSC 102
SECTION H02: Friday 09:40AM - 12:40PM, EWSC 102
Final Exam: Tuesday, December 06 - 09:00 AM

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

TEACHING ASSISTANT AND LABORATORY INSTRUCTOR
Joseph (Mac) Getz mgetz@geol.sc.edu
Office: EWS 202 (843)-206-4884

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 2016) 10%
Mid-term exam (October 09 2016) 15%
Semester-long Project – written and oral presentation 20%
Final exam* (December 09 2016) 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, 2016. 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 24, 26</td>
<td>No lab class</td>
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<tr>
<td>2</td>
<td>August 31, September 2</td>
<td>Introduction to Microsoft Excel</td>
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<td>3</td>
<td>September 10, 12</td>
<td>Long-term climate change</td>
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<td>4</td>
<td>September 7, 9</td>
<td>Earth’s magnetic field, continental drift and Seafloor spreading</td>
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<td>5</td>
<td>September 14, 16</td>
<td>Greenhouse effect</td>
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<td>6</td>
<td>September 21, 23</td>
<td>Global warming and the greenhouse effect: Proposed solutions</td>
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<td>7</td>
<td>September 28, 30</td>
<td>Hurricanes</td>
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<td>8</td>
<td>October 5, 7</td>
<td>No class study for midterm</td>
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<td>October 12, 14</td>
<td>No lab class</td>
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<td>9</td>
<td>October 19, 21</td>
<td>Great Sumatra earthquake and tsunami</td>
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<td>10</td>
<td>October 26, 28</td>
<td>Atmospheric and ocean circulation</td>
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<td>11</td>
<td>November 2, 4</td>
<td>Make up lab class (with permission)</td>
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<td>12</td>
<td>November 9, 11</td>
<td>OPEN/To be decided later</td>
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<td>13</td>
<td>November 16, 18</td>
<td>OPEN/To be decided later</td>
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<td>14</td>
<td>November 23, 25</td>
<td>No Lab class Thanksgiving</td>
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<td>15</td>
<td>November 30, 2</td>
<td>No Lab class</td>
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