

**Climate Change (GEO 122)**  
Spring 2013

**Professor**

Dr. Rhawn Denniston

Office: 202 Norton Geology

Office Phone: x4306

Office Hours: 11:00-12:00 M-F

**Text and Readings**

Students should buy: *Earth's Climate Past and Future* by Ruddiman and *The Little, Brown Essential Handbook* by Aaron

I will provide: selections from *Make Your Words Work* by Gary Provost and various journal and newspaper articles

**Course Description and Goals**

This course will investigate the ways in which Earth's climate has been reconstructed over a variety of time scales, from millions of years to individual seasons. You will be introduced to physical, chemical, biological, and geological paleoclimatic techniques. The goals of this course are for you to (1) understand the mechanisms behind climatic change over various time scales and (2) to make links between past, modern, and future climatic change. In addition, we will develop your abilities to read scientific literature and to write clearly and effectively.

**Course Meeting Times**

9:15-11:15 and 1:15-3:00 daily (except first day or as noted)

**Grading Scheme**

<i>MORNING SESSION:</i>	8% Daily Quizzes	8% Problem Sets	15% Midterm Exam	15% Final Exam
<i>AFTERNOON SESSION:</i>	10% In-Class Exercises	40% Three Formal Papers		
<i>OVERALL:</i>	4% Participation			

**Policy on Late Work**

Homework assignments, papers, and exams are to be completed within the scheduled time frame. You will be penalized 25% for every day that the assignment is late. If you have a college-sanctioned excuse for missing class or an assignment deadline, notify me immediately.

**Academic Honesty**

Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgment of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in *The Compass*, our student handbook, under the heading "Academic Policies – Honesty in Academic Work."

**Students with Disabilities**

Students who need accommodations for learning disabilities must provide documentation from a professional qualified to diagnose learning disabilities. For more information see [cornellcollege.edu/disabilities/documentation/index.shtml](http://cornellcollege.edu/disabilities/documentation/index.shtml). At the beginning of each course, the student must notify the instructor within the first three days of the term of any accommodations needed for the duration of the course.

<b>MORNING MEETING SCHEDULE</b>				
<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>WEEK 1</b>				
<i>Intro to Geology, Earth Interior, Geol Time, Rock/Mineral ID</i> Reading: textbooks on reserve (optional) HW: Prob Set 1; Rock and Mineral ID; Memorize Chemical Formulas	<i>Plate Tectonics</i> <u>Prob Set 1 Due, Quiz 1</u> Reading: textbooks on reserve (optional) HW: Prob Set 2	<i>Climate Overview, Greenhouse Effects, CO<sub>2</sub> and Long-Term Climate; Snowball Earth</i> <u>Prob Set 2 Due, Quiz 2</u> Reading: Ch. 1 HW: Prob Set 3	<i>Tectonics and Climate; Isotopes</i> <u>Prob Set 3 Due, Quiz 3</u> Reading: Ch. 6; Planktonic Paleothermometer HW: Prob Set 3-4	<i>Greenhouse Earth; Intro to Icehouse Earth (class ends at 10:00 for writing conferences)</i> <u>Prob Set 4 Due, Quiz 4</u> Reading: Ch. 5-6 HW: Prob Set 5
<b>WEEK 2</b>				
<i>Icehouse Earth; Milankovitch Cycles</i> <u>Prob Set 5 Due; Quiz 5</u> Reading: Ch. 6-7 HW: Prob Set 6	<i>Milankovitch Cycles and SPECMAP</i> <u>Prob Set 6 Due, Quiz 6</u> Reading: Ch. 7 HW: none	<i>Insolation and Monsoons</i> Reading: Ch. 8 HW: none	<b>Midterm Exam</b> Reading: none HW: none	<i>Long Change CO<sub>2</sub> &amp; CH<sub>4</sub></i> Reading: Ch. 9-11 HW: Prob Set 7
<b>WEEK 3</b>				
<i>Millenial-Scale Climate Changes</i> <u>Prob Set 7 Due, Quiz 7</u> Reading: Ch. 14 HW: Prob Set 8	<i>The Last Glacial Maximum and Deglaciation AND Climate Archives</i> <u>Prob Set 8 Due, Quiz 8</u> Reading: Ch. 2, 12-13 HW: none	<i>The Holocene</i> <u>Quiz 9</u> Reading: Ch. 13 HW: Problem Set 9	<i>The Last 1,000 Years</i> <u>Prob Set 9 Due, Quiz 10</u> Reading: Ch. 15-16 HW: Prob Set 10	<i>Cultural Responses to Climate Change &amp; Future Climate Projections and Effects</i> <u>Prob Set 10; Quiz 11</u> Reading: Ch. 17-18; Maya paper online HW: Prob Set 11
<b>WEEK 4</b>				
<u>Prob Set 11 due; Quiz 12</u> "An Inconvenient Truth" Reading: Ch. 19 HW: none	<i>Review Session (class ends at 10:00 for writing conferences)</i>	<b>Final Exam</b>		

**AFTERNOON MEETING SCHEDULE**

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>WEEK 1</b>				
<ul style="list-style-type: none"> <li>- Cornell survey (starts at 1:00 pm)</li> </ul>	<ul style="list-style-type: none"> <li>- Goals and expectations</li> <li>- Student self-assessment of writing strengths and weaknesses                             <ul style="list-style-type: none"> <li>- Is it plagiarism?</li> </ul> </li> <li>- <i>How to structure a paper</i> <ul style="list-style-type: none"> <li>- <i>Wordiness</i></li> <li>- <i>Varying sentence length</i></li> <li>- <i>Sentence Fragments</i></li> </ul> </li> </ul> HW: 1 <sup>st</sup> draft of <i>Cold Spell/Heat Wave</i> paper	<ul style="list-style-type: none"> <li>- <i>Active &amp; Passive Voice</i> <ul style="list-style-type: none"> <li>- <i>Specificity</i></li> <li>- <i>Strong Verbs</i></li> <li>- <i>Using Quotes</i></li> </ul> </li> <li>- Workshop instructions and the importance of peer assessment</li> <li>- Workshop practice “<i>Moving to Iowa City</i>” (class works together)</li> </ul> HW: Continue on <i>Cold Spell/Heat Wave</i> paper	<ul style="list-style-type: none"> <li>- 1<sup>st</sup> draft of <i>Cold Spell/Heat Wave</i> paper due; workshop in class</li> </ul> HW: work on 2 <sup>nd</sup> draft of <i>Cold Spell/Heat Wave</i> paper	<ul style="list-style-type: none"> <li>- One-on-one conference with Rhawn on <i>Cold Spell/Heat Wave</i> (at assigned times)</li> </ul> HW: Work on 3 <sup>rd</sup> draft of <i>Cold Spell/Heat Wave</i> paper; 1 <sup>st</sup> draft of research paper
<b>WEEK 2</b>				
<ul style="list-style-type: none"> <li>- 3<sup>rd</sup> draft of <i>Cold Spell/Heat Wave</i> paper due (also turn in previous two drafts)</li> <li>- Read aloud and discuss 25-word summary                             <ul style="list-style-type: none"> <li>- <i>Eight research paper skills</i></li> </ul> </li> <li>- Identify and assign research paper topics (some sources distributed)</li> <li>- info session #1 w/Mary Iber</li> </ul> HW: Begin identifying research paper sources and work on 1 <sup>st</sup> draft of research paper	<ul style="list-style-type: none"> <li>- Mary Iber info session #2; work on research paper</li> </ul> HW: 1 <sup>st</sup> draft of research paper	<ul style="list-style-type: none"> <li>- Graded <i>Cold Spell/Heat Wave</i> paper returned                             <ul style="list-style-type: none"> <li>- <i>Similes and Metaphors</i></li> </ul> </li> <li>- Class discussion of student <i>Heat Wave</i> papers</li> </ul> HW: 1 <sup>st</sup> draft of research paper	<ul style="list-style-type: none"> <li>- no class; work on research paper</li> </ul>	<ul style="list-style-type: none"> <li>- No class; Work on research paper</li> </ul> HW: 2 <sup>nd</sup> draft of research paper
<b>WEEK 3</b>				
<ul style="list-style-type: none"> <li>- One-on-one conferences with Rhawn on 2<sup>nd</sup> draft of research paper (at assigned times)</li> </ul> HW: 3 <sup>rd</sup> draft of research paper	<ul style="list-style-type: none"> <li>- 3<sup>rd</sup> (final) draft of research paper due</li> <li>- Writing Exercises: advocating for an argument</li> <li>- Intro to Climate Policy paper</li> </ul> HW: 1 <sup>st</sup> draft of policy paper	<ul style="list-style-type: none"> <li>- Writing Exercises: writing technical reports</li> </ul> HW: 1 <sup>st</sup> draft Climate Policy paper	<ul style="list-style-type: none"> <li>- No class; Work on Climate Policy paper</li> </ul> HW: 1 <sup>st</sup> draft Climate Policy paper	<ul style="list-style-type: none"> <li>- 1<sup>st</sup> draft of Climate Policy paper due; workshop in class</li> </ul> HW: 2 <sup>nd</sup> draft of Climate Policy paper
<b>WEEK 4</b>				
<ul style="list-style-type: none"> <li>- 2<sup>nd</sup> draft of Climate Policy paper due</li> </ul> HW: none	<ul style="list-style-type: none"> <li>- One-on-one conferences with Rhawn on 2<sup>nd</sup> draft of Climate Policy paper (at assigned times)</li> </ul> HW: revise paper/study exam	<ul style="list-style-type: none"> <li>- 3<sup>rd</sup> draft of Climate Policy paper due at 9 am before Final Exam</li> </ul>		