

# GLY 579: Climate Change

Spring 2012                      3 credit hours

**Dr. David Barclay:** Office: 324 Bowers, (607) 753-2921  
E-mail: david.barclay@cortland.edu  
Course webpage in the SUNY Cortland eLearning system

**Office hours:** M 11:30 am - 1:30 pm, W 11:30 am - 2:30 pm,  
or by appointment, or at other times if I am available.

**Lecture:** 339 Bowers; W, 4:20 - 6:50 pm

**Textbook:** Ruddiman, W.F., 2008, Earth's Climate: Past and Future, 2<sup>nd</sup> edition.

### Catalog course description:

“The science of climate change. Emphasis on events, environments and climatic forcings over the past two million years. Prerequisites: GLY 261 and 12 credit hours of natural science (geology, biology, chemistry or physics) at the 300 level or above. (3 cr. hr.)”

### Course attendance policy:

I expect you to attend all class sessions. Please familiarize yourself with official college policy on attendance and absences (Section 410.11 of College Handbook).

Be responsible for your own education. If you miss a class, get the notes from a colleague before the next class. If you miss an exam, you must contact me as soon as possible with a valid reason for your absence or you will receive a zero for that exam. Ask questions and get involved in class discussions; your participation and attitude will be used to aid final grade determinations for borderline situations.

### Emails:

Occasionally I may need to contact the class regarding changes to the schedule, assignments or for other reasons. Accordingly, I need email addresses for all students that will work and which students will check regularly. Please email me this week from an email account that meets these criteria so that I have your reliable email address on record, should I need it.

### Academic integrity:

I expect you to abide by the SUNY Cortland standards of academic integrity (Chapter 340 of the College Handbook). Stated simply, this means that you will not commit plagiarism, nor cheat on exams, nor help others plagiarize or cheat.

### Academic accommodations:

If you are a student with a disability and wish to request accommodations, please contact the Office of Student Disability Services located in B-40 Van Hoesen Hall or call (607) 753-2066 for an appointment. Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests should be made as early as possible.

### Evaluation of student performance:

There will be a midterm and a final exam in this course (see schedule on page 3). These will respectively be worth 30% and 40% of your final grade. Material on these exams will be based on the material covered in lecture, in exercises and in homework assignments since the previous exam. Each exam will comprise a mix of multiple-choice, short answer and data analysis questions. The remaining 30% of your grade will come from in-class exercises, homework assignments and participation.

A+ = 97-100	B+ = 87-89	C+ = 77-79	D+ = 67-69	E = 0-59
A = 93-96	B = 83-86	C = 73-76	D = 63-66	
A- = 90-92	B- = 80-82	C- = 70-72	D- = 60-62	

### Reading assignments:

Recommended reading assignments, including some online sources, for every class will be posted on the course website (in the SUNY Cortland eLearning site). This reading list will be updated regularly so please keep checking back throughout the semester.

### Course schedule and activities: (tentative)

<u>Week</u>	<u>Date</u>	<u>Class</u>
01	18 Jan.	Climate system science <ul style="list-style-type: none"><li>• Energy balance, forcings, internal adjustments, feedbacks, proxies, time.</li></ul>
02	25 Jan.	Marine cores <ul style="list-style-type: none"><li>• Sediments, coring, paleomagnetism, forams, oxygen isotopes.</li></ul>
03	1 Feb.	Orbital forcing <ul style="list-style-type: none"><li>• Time series analysis, Milankovitch cycles, insolation distribution.</li></ul>
04	8 Feb.	Ice sheets <ul style="list-style-type: none"><li>• Feedbacks, non-linear responses, dynamics.</li></ul>
05	15 Feb.	Ice cores & greenhouse gases <ul style="list-style-type: none"><li>• Coring, age control, greenhouse gases.</li></ul>
06	22 Feb.	Glacial-interglacial cycles <ul style="list-style-type: none"><li>• Putting it all together.</li></ul>
07	29 Feb.	<b>Midterm Exam</b>
-	7 Mar.	SPRING BREAK
08	14 Mar.	Lake cores & pollen <ul style="list-style-type: none"><li>• Coring, paleoecology, pollen diagrams.</li></ul>
09	21 Mar.	Ice cores <ul style="list-style-type: none"><li>• Rapid climate change.</li></ul>
10	28 Mar.	Millennial oscillations <ul style="list-style-type: none"><li>• D-O events, Bond cycles, Heinrich events.</li></ul>
11	4 Apr.	Holocene climate & valley glacier records <ul style="list-style-type: none"><li>• Dendrochronology, lichenometry, radiocarbon.</li></ul>
12	11 Apr.	Dendroclimatology <ul style="list-style-type: none"><li>• Tree lines, temperature &amp; drought reconstructions.</li></ul>
13	18 Apr.	Historical climate change <ul style="list-style-type: none"><li>• Solar luminosity, explosive volcanic eruptions, human impacts.</li></ul>
14	25 Apr.	Global warming <ul style="list-style-type: none"><li>• The future.</li></ul>
-	2 May	No class
15	9 May	<b>Final Exam</b>