Syllabus
GSCI 115: Earth Systems, Cycles, & Human Impact
Spring 2008

This syllabus, as well as an updated lecture schedule, reading assignments, and Warm-Up assignments, is available on the Blackboard site for this course.

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Office Hours: I will be available after class every day.
I am also usually available at these times: W 9-11:30, 1-5.
In general, I am in my office when I'm not teaching class or in a meeting. I encourage you to stop by and chat.
If you need to discuss something that is time-sensitive or private, it's best to make an appointment by e-mail. *Please **do not rely on the telephone** as a way to contact me.

Class meeting times and location: TTh 3:30-4:45 PM, 6110 Memorial Hall

Course Description: We will explore climate change on Earth through the framework of Earth System science. Earth Systems science tries to explain the state of the Earth's surface (climate) as a result of complex interactions between the atmosphere, hydrosphere, biosphere, and lithosphere, driven by the Sun's energy. These interactions result in changes in climate that occur over timescales as short as a year and as long as millions or billions of years. Humans are a part of the Earth System, and we will investigate our dependence on and impact upon the Earth's climate.

Textbook: Earth's Climate Past and Future, **2nd edition**, by William F. Ruddiman (2007), ISBN-13: 978-0-7167-8490-6; ISBN-10: 0-7167-8490-4, W.H. Freeman and Co. The "old" Chapter 2 from the **1st** edition of the text is available on the publisher's website as a .pdf file: http://bcs.whfreeman.com/ruddiman2e/.
Additional readings will be posted on the course Blackboard site.

Assessment (based on points):

225	**Test 1**
225	**Test 2**
225	**Test 3 (final; not cumulative)***
160	**Warm-Up Assignments and In-Class Activities**
165	**Project: News Article**
1000	**Total Points**

10-30 Points for Extra Credit Satire Project
* I reserve the right to adjust the points for any test or assignment to obtain a total of 1000 points for the course at the end of the semester. For example, if we miss a class activity because of snow, I may put an extra multiple choice question on the next test.

Tests: Tests are not cumulative- each test will cover only the material not covered on the previous test. Tests will consist of multiple-choice, true-false, and short answer questions. Please read the "illness and family emergency" section below for make-up policies.

Warm-Up and In-class Assignments: Warm-Ups are short (1-3 questions) assignments that check for your completion of the reading before lectures and encourage you to think independently about the course material. These assignments will be posted on the Blackboard site and you should complete them online by 2 PM on the lecture day. I strongly encourage you to print out your assignment. We will discuss these questions and your responses in class, so come to class prepared with your answers! More detailed information about Warm-Ups can be found under "Assignments" on the course Blackboard site.
We will also do some written assignments in class, which you will turn in during class to receive credit. You should bring paper, pen/pencil, ruler, textbook, and calculator with you to class every day.
Each assignment is worth 5 points. There is no make-up for assignments, but your lowest two scores (10 points) will be dropped, to allow for sickness or emergency.

Project- News Article: One important goal of this course is to help you learn how to find and use scientific resources available to you as a student and citizen. For this project, you will write a news article about results from a new climate change study you choose to cover. We will base our information search on the 2007 IPCC (Intergovernmental Panel on Climate Change) Report. Your fellow JMU students will be the audience for your article. Detailed instructions and due dates for each stage of the project will be given separately.

Extra Credit Satire Project: You create something that could be found in the comics (opinion page or funnies), in the *Onion*, or on late-night TV (*Colbert Report*). You can base your satire project on a general issue such as global warming or public or political reaction to climate change issues, or you can pick a more specific topic. Your extra credit project should include your satire piece and a short (serious) explanation of the issue you chose and the message you wanted to convey. The satire project must be original and must be related to this course. You will receive between 10 and 30 points extra credit towards your course grade for the satire project based on its 1) quality 2) creativity and 3) relevance and appropriateness. The satire project is due on April 24 at the beginning of class. See the "Projects" section on Blackboard for examples from professionals.

Academic Honesty: You should follow the JMU Honor Code policy (http://www.jmu.edu/honor/code.shtml) at all times. I will provide more detailed guidelines in the directions for each assignment or test. If you have a question about how the policy is applied to a particular assignment, please ask me **before** the assignment is due! In general, I encourage students to collaborate in studying and discussions, but you should complete all assignments ***using your own words***. If you use an idea or figure from a website, book, article, or another person, you must reference

the source! Copying text directly from a website, book, article, another student's paper, or any other source is a violation of the Honor Code.

Grades: The grades received at the end of the semester will reflect your understanding, application, and communication of the concepts we examine in this course. I use the standard scale for letter grades (A = 93 to 100 %; A- = 90 to 92 %; B+ = 87 to 89 %; B = 83 to 86 %; B- = 80 to 82%; C+ = 77 to 79 %... You can calculate your percentage score by dividing your total points by the total possible points, and multiplying by 100).
A = demonstrated a superior understanding of the material, including excellent application and integration of material to new situations, all assignments completed in an outstanding way, exemplary effort made, excellent communication.
B = demonstrated a solid understanding of the terms and concepts with some integration and application, assignments completed correctly, good effort made, clear communication.
C = completed the material, but demonstrated lack of understanding and application, assignments contain some errors or are incomplete, fair to good effort made, communication adequate.
D = poor understanding of the material, many missing assignments or wrong answers, minimal effort made, communication poor.
F = no understanding of material, many missing assignments, no effort made.

Illness or Family Emergency: If you get sick or have to miss school because of an emergency, please follow these guidelines for this course:
1. Are you going to miss a test or a project due date? If so, please talk me **before** you miss the test/due date. This is the one case where I may request that we talk over the telephone. I will ask you to provide documentation of the issue and we will discuss makeup options.
2. Did you miss more than a week of classes? If so, you should make an appointment with me once you are better. We can discuss how you can make up what you have missed. I will ask you to provide documentation of your illness.
3. Did you miss only one or two lectures or Warm-Up assignments? If you missed one or two classes or Warm-Up assignments, you are encouraged to meet with me if you have questions about what you missed, but you don't need to worry about making up the assignments. Your lowest two scores (10 points) will be dropped.

Disability Statement: If you are a student with a documented disability, please make sure you are registered with the Office of Disability Services, Wilson Hall, Room 107, 568-6705 and provide me with an Access Plan letter outlining your accommodations. I will be glad to meet with you privately during my office hours to discuss your needs.

Inclement Weather: In case of bad weather, we will follow JMU's inclement weather policy (http://www.jmu.edu/JMUpolicy/1309.shtml). Check the JMU homepage or listen to the radio for the latest updates. I will e-mail you (if possible) to confirm that class is cancelled and provide information about changed due dates for assignments, etc., if necessary.

Class Rules: I expect you to be on time, turn cell phones off and put them away, focus on today's lecture & activities, be quiet when I start "the wave," and eat & drink quietly and neatly. No computers are allowed in the *last row* of seats. I will remind you of the rules if there is a problem, and you should then either immediately fix the problem or leave the room until the issue is resolved.

Tentative Course Schedule: Please check Blackboard for daily reading assignments, Warm-Up assignments, and updates. The schedule of topics will likely be modified; the test dates will not be changed unless there is an emergency.

Date	**Week**	**Topic**
Jan. 8	1	Intro
Jan. 10	1	Scientific method
Jan. 15	2	Earth as a system; Energy
Jan. 17	2	Greenhouse effect
Jan. 22	3	Hydrologic cycle (Water & ice)
Jan. 24	3	Atmospheric circulation
Jan. 29	4	Surface ocean currents
Jan. 31	4	Deep ocean currents
Feb. 5	5	Gaia
Feb. 7	5	**Test 1**
Feb. 12	6	**Assessment Day**
Feb. 14	6	El Nino
Feb. 19	7	Global Circulation Models
Feb. 21	7	Geologic time scale
Feb. 26	8	Climate records and ocean cores
Feb. 28	8	Plate tectonics
Mar. 4	**Spring Break**	
Mar. 6	**Spring Break**	
Mar.11	9	Tectonics and climate
Mar. 13	9	Dinosaurs and models
Mar.18	10	PETM and KT boundary
Mar. 20	10	**Test 2**
Mar.25	11	Back to the icehouse
Mar. 27	11	Milankovitch (orbital) cycles
Apr. 1	12	Ice cores: temperature
Apr. 3	12	Ice cores: greenhouse gases
Apr. 8	13	Last glacial maximum
Apr. 10	13	GSA Meeting
Apr. 15	14	Last glacial maximum
Apr. 17	14	Population growth
Apr. 22	15	Greenhouse debate
Apr. 24	15	Wrap Up
Finals		**Test 3 (not cumulative)**