

**Professor:** Figen Mekik

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**Office Hours:** Tuesdays and Thursday 11am - 1pm PAD146

**Required Text:** William Ruddiman, Earth's Climate, Past and Future, 0-7167-3741-8

We will begin this course by discussing the strengths and limitations of scientific reasoning. Then we will explore the affects of humans on their environment and how science is useful in conserving Earth's resources and avoiding environmental risks. We will study geologic processes from an "Earth-system-science" perspective in order to understand the global environment. We will focus on climate science this semester because human impact on Earth's climate is the biggest influence humans are having on their global environment.

All students are greatly encouraged to actively participate in learning. In other words, ask questions, argue points and voice your opinions! Geology is a fun science with many exciting branches. It is about our planet and all natural things on and in it. So join in with your observations and thoughts, and do not hesitate to interrupt me and ask questions. All questions are welcome.

**Format:**

Class will consist of lecture, discussion, slides, overheads, class assignments, take-home assignments, discussion sessions, and movies that will reinforce the important topics from the text.

**Evaluation:**

**EXAMS:**

There will be three examinations during the semester plus a comprehensive final exam. *Comprehensive* means all topics covered since the first lecture are included in the final. The exams are tough. I have high standards for my students. Memorization will not help you in my exams. Understanding will.

In general, make-ups for any missed exam are unavailable. However, if you are ill or there is a death in the family you may take a make-up as long as you can provide documentation (for example from a doctor) for the cause of your absence from an exam. If you know that you will miss a future exam for a legitimate reason, let me know ahead of time and I can arrange for you to take the exam prior to the scheduled exam date.

**ATTENDANCE:**

Success in this course is directly correlated with your attendance and participation in class. Topics build on top of one another. When you miss a class, you may miss the foundation for the next class. So, here is my tip: come to class, pay attention, take notes and ask questions

**Grading:**

EXAMS during semester: 300 points (100 points each)

FINAL EXAM : 150 points

CLASS WORK and QUIZZES: 50 points

TOTAL POINTS =500

**LETTER SCALE: Letter grades will be assigned by the following scale:**

500-450	449-400	399-325	324-250	<250
A	B	C	D	F

**GENERAL EDUCATION FOUNDATION CATEGORY:  
THE PHYSICAL SCIENCES**

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**Category Purpose and Description**

The physical sciences explore and seek to explain the behavior of the physical universe. They seek to understand the fundamental workings of nature, from the behavior of particles of matter to the functioning of the galaxies. Study of the concepts, history, contexts, and methodologies of the physical sciences assists students in becoming scientifically literate. Each course in this category is a broad introduction to one or more of the physical sciences. Courses contribute to the development of critical thinking and problem-solving skills, and help students apply an understanding of scientific ways of thinking to their own lives and careers.

**Content Objectives**

All courses in the Physical Sciences Category include the following content:

- 1) The introduction of the physical sciences as a "way of knowing"; an examination of principles and questions that define the field;
- 2) An understanding of how scientists use information and theory to explain the phenomena observed in the physical universe;
- 3) The unifying concepts of the physical sciences including the forces of nature, the structure of materials, and the role of energy in the physical universe.

**Skills Objectives**

All courses in the Physical Sciences Category use teaching methods that help students become more proficient in the following skills:

- 1) To engage in articulate expression through effective speaking or writing;
- 2) To think critically and creatively;
- 3) To locate, evaluate, and use information effectively.

**Courses in the Category**

- Non lab: CHM 102; GEO 100; GEO 103; GEO 105
- Lab courses: CHM 109; CHM 115; CHM 201; GEO 111; NRM 140; PHY 105; PHY 201; PHY 202

Dates	Topics	Chapters
January 11	Overview of the Climate System	1
	Modern Climate System	2
January 18	Modern Climate System	2
	Climate Archives, data and Models	3
January 25	CO <sub>2</sub> and Long Term Climate	4
Feb. 1	EXAM 1; Plate Tectonics and Climate	5
Feb. 8	Plate Tectonics and Climate	5
	Greenhouse Earth	6
February 15	Greenhouse Earth and Recovery	6,7
February 22	Astronomical Control of Solar Radiation	8
	Insolation and Monsoons	9
March 1	EXAM 2	
March 8	SPRING BREAK	
March 15	Insolation and Ice Sheets	10
	Orbital Scale Changes	11
March 22	Orbital Scale Interactions	12
	The Last Glacial Maximum	13
March 29	EXAM 3 LGM and the Deglacial	13, 14
April 5	Millennial Climate Oscillations	14, 15
April 12	Historical /Human Induced Climate Change	16, 17
April 19	Modern and Future Climate	18, 19

FINAL EXAM: (Comprehensive) April 26, 6-8 pm, LTT 101

Last day to Drop the course with a grade "W" is March 2, 2007.

**\*\*This syllabus is subject to change where change is needed, as the course progresses.**