

Planet Earth Geology 2001

Professor: Eric Small Tilton

* Office Hours: Tuesday 8:30-9:30; Wednesday 1:45-2:45

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TA: Peter Shellito; Peter.Shellito@colorado.edu

Lecture: T, Th 9:30-10:45, Benson 1B75

Labs: M 3-5:50; W 11-1:50; Benson 385

Texts:

Kump, Kasting, and Crane, 2010, The Earth System, 3rd Edition (Kump)

plus occasional readings (handouts) from literature, on D2L GEOL 2001 site

**** you will be 'tested' on the readings during class (see below regarding in-class exercises)

Evaluation of your performance

1. Homework and in-class assignments count for a total of **40%** of your grade.

1a. Homework assignments will be handed out in class and are due in class on the designated day. No late homeworks accepted (.....unless you have an official excuse). Homeworks should be considered 'practice' for the exams. Homework assignments will be handed out every 2 to 3 weeks (a total of 5 or 6 in the semester).

1b. In-class assignments: Our goal is to minimize 'lecture' time and maximize 'active learning'. The in-class exercises are designed so that you have an opportunity to put-to-use the information in the book and lectures. Some portion of the in-class exercises will be based on the reading – you can consider these a quiz on the reading. Other parts are designed to reinforce the information described in the lectures.

2. Labs. **20%**. Labs will be due in lab period the following week. No late labs.

3. Midterm Exam, which counts for **20%** of your grade.

4. Final Exam, which counts for **20%** of your grade.

SYLLABUS

Date	Topic	Reading and Assignments
Week 1		
8/25	Lecture 1. An overview of the course... The questions we'll ask.	<i>Kump Chapter 1</i>
8/27	Lecture 2. Global Change and systems	<i>Kump Chapter 2</i>
Week 2		
8/31	First Monday lab	
9/1	Lecture 3. Global Energy Balance: Greenhouse Effect	<i>Kump Chapter 3</i>
9/3	Lecture 4. Global Energy Balance continued	<i>Kump Chapter 3</i>
	Lab 1. Monday only (Temperature of the Earth)	
Week 3		
9/7	Labor Day, no Monday lab	
9/8	Lecture 5. Atmospheric Circulation	<i>Kump Chapter 4</i>
9/9	First Wednesday lab	
9/10	Lecture 6. Precipitation	<i>Kump Chapter 4</i>
	Lab 1. Wednesday only: Temperature of the Earth	
Week 4		
9/15	Lecture 7. Oceans	<i>Kump Chapter 5</i>
9/17	Lecture 8. Cryosphere	<i>Kump Chapter 6</i>
	Lab 2. Precipitation analysis Part I	
Week 5		
9/22	Lecture 9. Cryosphere cont.; and summarize climate.	
9/24	Lecture 10. Circulation of solid earth	

Kump Chapter 7

Lab 3. Precipitation analysis Part II

Week 6

9/29 **Lecture 11. Circulation of solid earth**
Kump Chapter 7

10/1 **Lecture 12. Recycling of the elements: carbon and nutrients**
Kump Chapter 8

Lab 4. Plate Motion and GPS vectors

Week 7

10/6 **Lecture 13. Recycling of the elements: carbon and nutrients**
Kump Chapter 8

10/8 **Lecture 14. Recycling of the elements: carbon and nutrients**
Reading: TBD

Lab 5. Isostasy

Week 8

10/13 **Lecture 15. Biota**
Kump Chapter 9

10/15 **Lecture 16. MIDTERM**

No lab

Week 9

10/20 **Lecture 17. Introduction to hydrology – from pores to Earth's climate**
Reading: TBD

10/22 **Lecture 18. Basin-scale water balance**
Reading: TBD

Lab 6. Discharge Boulder Creek; Basin-scale water balance

Week 10

10/27 **Lecture 19. Geodetic tools for monitoring the water cycle**
Reading: TBD

10/29 **Lecture 20. Groundwater**
Reading: TBD

Lab 7. Boulder 2013 Flood

Week 11

11/3 **Lecture 21. River systems and deltas**
Reading: TBD

11/5 **Lecture 22. Water cycle and Drought (GETSI)**
Reading: TBD

Lab 8. Groundwater Mining and the High Plains Aquifer

Week 12

11/10 **Lecture 23. Sediment: production, transport, burial**
Reading TBD

11/12 **Lecture 24. River systems, deltas, sea level**

Lab 9. Groundwater withdrawal and fluctuations in the height of Earth's surface

Week 13

11/17 **Lecture 25.** Pleistocene glaciations
Kump Chapter 14

11/19 **Lecture 26.** Pleistocene glaciations
Kump Chapter 14

Lab 10. Monitoring the California Drought

Week 14

No Classes, Fall Break

Week 15

12/1 **Lecture 27.** Holocene to last millenium of climate history.
Kump, Chapter 15
Ruddiman, W. F., Scientific American March 2005, "How did humans first alter global climate?"

12/3 **Lecture 28.** Recent and future climate change
Kump, Chapter 15

Lab 11: Monitoring the California Drought (continued)

Week 16

12/8 **Lecture 29.** Global warming: impacts, adaptation, and mitigation
Kump, Chapter 16

12/10 **Lecture 30.** 2nd and last exam

No lab

Useful additional information:

Disabilities

If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see [Temporary Injuries guidelines](#) under the Quick Links at the [Disability Services website](#) and discuss your needs with your professor.

Absences due to religious observances

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, *{{insert your procedures here}}*

See [campus policy regarding religious observances](#) for full details.

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the [policies on classroom behavior](#) and [the student code](#).

Cell phone and computers: No texting, no emailing, no web surfing, etc. These activities are very distracting to those around you. If you are using your phone in class as a calculator, it should be on airplane mode. If you are using your computer to take notes, turn the Wi-Fi off. I will do the same. If you must text or email, please leave the classroom and don't return during that class period.

Discrimination and harassment

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, "Protected Classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been discriminated against should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or the Office of Student Conduct and Conflict Resolution (OSC) at 303-492-5550. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be found at the [OIEC website](#). The [full policy on discrimination and harassment](#) contains additional information.

Honor code

All students of the University of Colorado at Boulder are responsible for knowing and adhering to [the academic integrity policy](#) of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Additional information regarding the [Honor Code policy can be found online](#) and at the [Honor Code Office](#).