

GEOG 1011-01 Environmental Systems: Landscapes and Water

Lecture: MWF 1-1:50 MCOL W100

Lab: 2 hrs. (see schedule), Gugg. 3

Instructor:

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Gugg. 315, Office hrs: MW 4-6 PM

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Course Web Page: http://www.colorado.edu/geography/class_homepages/geog_1011_f09/

General: This course will introduce you to the sciences of *hydrology* and *geomorphology*, which are two branches of physical Geography dealing with earth surface processes. You can think about the course and the individual topics as a sort-of competition between deep-seated geologic processes which build mountains and landforms, and near-surface processes, such as landslides, floods, and glaciation, which wear them down. We will start by discussing basic geologic processes such as plate tectonics, volcanoes, and earthquakes. These processes not only create unique landforms, but they present significant hazards to people in some areas. For the remainder of the semester we will look at how the Earth's surface is modified by hydrologic and geomorphic processes, such as weathering, soil erosion, landslides, flooding, and glaciation. I try to incorporate material of local interest, but just so we don't get too provincial, I also discuss topics relevant to other areas. Finally, I will provide you with information about the importance of natural resources (soil and water conservation), and discuss some of the consequences of environmental degradation (deforestation, river regulation, and climate change).

Text (required): R.W Christopherson, *Geosystems*, 7th ed., Prentice Hall, Upper Saddle River, NJ
(2 copies on reserve in the Earth Sciences library; assigned readings will be posted on the course web site).

Lab manual (required): J. Pitlick and J. Clayton, 2002, *Lab Manual to Accompany Environmental Systems*, Pearson Custom Publishing, Boston, MA (obtain from either bookstore).

Lab: Each person attends a 2-hour lab session each week. The lab is mandatory and once you sign up for a section, please stick with it. If you cannot make it to your regularly scheduled lab (say, because of a dentist appointment) please discuss this with your TA beforehand, not afterwards. No labs will be held the first week (Aug. 24-28), or during the Thanksgiving break (Nov. 23-27). Most labs consist of hands-on exercises that you will complete before the next week's lab. We have scheduled three mandatory field trips, and two labs that utilize information from the internet.

Grading: Your course grade will be based on

- 2 highest out of 3 midterm tests (40%); tests are scheduled for Sept. 16, Oct. 14, and Nov. 11;
- comprehensive final exam (30%); scheduled for Mon., Dec 14, 4:30-7:00 PM
- 11 highest out of 12 lab exercises, and lab quizzes (30%).

Midterm and final exams cover material from lecture, text, and readings. Test questions are multiple choice; some questions test your ability to connect concepts, other questions test your knowledge of basic facts. These tests aren't necessarily easy, but I curve the scores accordingly. **NOTE:** You are allowed to drop one of the midterm exams. However, I do not give make-up exams. If you miss a midterm exam for any reason (sickness, family emergency, etc.), you will receive a score of zero for that exam, and that will count as your lowest score. I suggest you hold this option in reserve- treat all of the exams as if each counted- then, if a real emergency arises, or you just don't do very well on a test, you still have the option to drop one score. The final exam is mandatory and it will cover everything. Note the date and time of the final exam! I cannot accommodate people who would like to take the final exam early.

The key to success in this course is class attendance. I often present information that isn't discussed in the textbook, and missing more than a couple lectures can cost you more than 20 pts. on an exam. However, I recognize that situations may arise that make it difficult to focus on coursework. If this happens, or if you are having problems with assignments, lectures or exams, please schedule an appointment with me or one of the TAs to talk about it. We can accommodate problems to a certain extent, but you must let us know about them as soon as you can so that we can make adjustments.

Dates	GEOG 1011-01 Outline and Topics	Reading
8/24-28	Introduction to Earth Structure and Plate Tectonics	Ch 11
8/31-9/4	Plate Tectonics and Mountain Building	Ch 11
9/7	Labor Day Holiday (no class)	
9/9	Faulting and Earthquakes (processes, hazards)	Ch 12, pp. 366-385
9/11-14	Volcanism (processes, hazards)	Ch 12, pp. 386-397
	Reading Assign.1: Yellowstone Caldera	(download from course web page)
9/16	1st Exam	
9/18-21	Weathering (mechanical, chemical, biological)	Ch 13, pp. 404-412
9/23-28	Soils (formation, distribution, and conservation)	Ch 18
	Reading Assign.2: Soil Degradation	(download from course web page)
9/30-10/12	Mass Wasting	Ch 13, pp. 416-426
10/14	2nd Exam	
10/16-19	Hydrology I (water resources, water balance)	Ch 9
10/21-30	Hydrology II (ground water, surface water, flooding)	Ch 9; Ch 14, pp. 456-65
	Reading Assign.3: Water Resources	(download from course web page)
11/1-9	Fluvial Processes I (flow, sediment transport)	Ch 14
11/11	3rd Exam	
11/13-20	Fluvial Processes II (channel patterns, effects of river regulation)	Ch 14
11/23-27	Thanksgiving Break	
11/30-12/11	Glacial Processes and Climate change	Ch 17
	Reading Assign.4: Tectonics and climate change	(download from course web page)
12/12	Final Exam (Scheduled for Mon., Dec. 14, 4:30 PM)	

University of Colorado-Boulder Policies

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, www.Colorado.EDU/disabilityservices

Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See full details at http://www.colorado.edu/policies/fac_relig.html

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All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, and bribery. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-725-2273). 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 probation, suspension, or expulsion). Other information on the Honor Code can be found at <http://www.colorado.edu/policies/honor.html>