

Course Syllabus

Soils and Geomorphology SC 42200, 4 units

Applied Geomorphology ES 62200, 3 units

Fall Session, September 27 – December 13, 2007

Lecture Tuesday/Thursday 8:00-10:20 am, GH 314; Lab Wednesday 8:00-11:50 am, GH 301; 2 day-long weekend fieldtrips

Instructor Michael Loso

Office hours: Tuesday/Thursday 10:30-noon; Wednesday noon-1:00; and by appointment • Grant Hall 310B

mloso@alaskapacific.edu • 907-564-8263 (office) • 907-334-0970 (home)

Catalog Description This course examines the physical and environmental aspects of the land resource including the soils and sediments that comprise the landforms of the earth's surface. The course presents the detailed study of landforms and the processes that control their formation, whether erosional, depositional, tectonic, or volcanic. An introduction to land capability is included. Laboratory work includes field sampling techniques, analysis of soils, and interpretation of landforms on air photos and topographic maps.

Learning Objectives Develop and refine an attentive, curious approach to recognition of diverse surficial landforms that characterize earth's surface. Understand the physical and biological laws and processes that control their formation. Know the basic properties of parent materials and soils that comprise these landforms, and become familiar with basic techniques for investigation of these materials. Know the basic geological, ecological, and cultural histories that influence landform formation, and understand quantitative/qualitative techniques for dating landforms. Through practice, become comfortable utilizing field observations, maps and aerial photos, and peer-reviewed research in the analysis of geomorphic problems.

Requirements

Texts: Summerfield, Michael A. 1996. *Global Geomorphology*. Prentice Hall: Saddle River NJ.

McPhee, John. 1990. *The Control of Nature*. Farrar, Straus, and Giroux: New York NY.

Dilley, Lorie M. and Dilley, Thomas E. 2000. *Guidebook to Geology of Anchorage, Alaska*. Publication Consultants: Anchorage AK. (*optional—also available on reserve at Consortium Library*)

Equipment and fees: A \$50 lab fee is required to cover lab equipment and supplies.

Prerequisites, Skills, and Participation: MT 121 (precalc) and either SC 107 (physical geology) or SC 413 (environmental geology) are prerequisites for this course. Success will require continual diligence in keeping up with required readings, attention to detail in note taking and studying, and memorization of some material. Participation in both formal and informal discussions is expected, and will be counted towards your grade. Regular use of an APU email address is required for this class. If you need disability-related help, notify Tamara Randolph, APU's Disabilities Services Coordinator (564-8345).

Policies

Attendance and Tardiness: Students are expected to attend all class meetings. In the event of absences excused by medical, family, or other emergencies, you will still be expected to complete all assignments. With advance notice, I will consider on a case-by-case basis the approval of non-emergency absences. Please be on time for all group meetings and activities; tardiness is an inconvenience to the entire group. I will penalize your participation grade for repeated tardiness, and activities (including unannounced ones) missed due to unexcused absences or tardiness cannot be made up later.

Cell Phones: If my cell rings during class, I'll buy you a cup of coffee. I expect the same of you. The second time it's lunch.

Ethics: Do your own work, and provide citations when you incorporate the ideas of others. Plagiarism, cheating, and other dishonest/unethical behaviors are a waste of your own time and money, and will be subject to disciplinary measures outlined in the APU Student Handbook.

Grading: Your grade in this class will reflect your diligence. Pay attention, work hard, and ask for help when you're confused, and you will do well. Quizzes may occur at any time, so keep up on the readings. At times, I may allow or even require you to rewrite and resubmit assignments after they are returned to you. In these cases, you will be eligible for an improved grade. Course grades will be based on the following assignments.

- Midterm exam / early quizzes 20%
- Final exam / late quizzes 20%
- Lab assignments 25%
- Abstracts and freewrites 25%
- Participation 10%

Final grading will be assessed as follows:

- A+ >97% A 93-96.9% A- 90-92.9%
- B+ 87-89.9% B 83-86.9% B- 80-82.9%
- C+ 77-79.9% C 73-76.9% C- 70-72.9%
- D+ 67-69.9% D 63-66.9% D- 60-62.9% F < 60%

Calendar (subject to change; updates will be announced in class and posted on moodle)

to	Topic	Readings	Assignments due
Sep 25/Th	1. Energy, mass, and climate		
Sep 30/T	2. The geomorphologist's toolkit	S 513-515, Gilbert 09	abstract
Oct 1/W	LAB 1: Rivers (field)		
Oct 2/Th	3. Chemical and physical weathering	S 129-160	
Oct 7/T	4. Parent materials and soil development	Muhs 04	abstract
Oct 8/W	LAB 2: Wetland soils (field)		lab 1 report
Oct 9/Th	5. Soil nomenclature and taxonomy		
Oct 12/SUN	SUNDAY LAB 3: Upland soils (field)		
Oct 14/T	6. Hillslopes and mass wasting	S 163-189	lab 2 report
Oct 15/W	NO LAB		
Oct 16/Th	7. Water in watersheds	M Los Angeles	freewrite
Oct 21/T	8. Water in channels	S 191-204	
Oct 22/W	LAB 4: Mapping (field)		lab 3 report
Oct 23/Th	9. Fluvial transport and landforms	S 207-233, M Atchafalaya	freewrite
Oct 28/T	10. Depositional and coastal landforms	S 313-342	
Oct 29/W	LAB: Catchup and exam review		lab 4 report
Oct 30/Th	Midterm exam		exam
Nov 4/T	11. Glacial mechanics	S 261-275	
Nov 5/W	LAB 5: Rivers (analysis)		
Nov 6/Th	12. Glacial deposits and landforms	S 275-290	
Nov 11/T	13. Glacial erosion	Anderson 06	abstract
Nov 12/W	LAB 6: Glaciers (analysis)		lab 5 report
Nov 13/Th	14. Periglacial landscapes	S 293-311	
Nov 18/T	15. Crustal scale deformation and isostasy	S 33-55, Molnar 90	abstract
Nov 19/W	NO LAB		
Nov 20/Th	16. Volcanoes and earthquakes	S 107-126	lab 6 report
Nov 25/T	17. Tectonic geomorphology	S 57-82	
Nov 26/W	LAB 7: Anchorage geomorphology (analysis)	Schmoll 99	abstract
Nov 27/Th	No class -Happy Thanksgiving		
Dec 2/T	No class -attend senior project presentations		
Dec 3/W	LAB 8: Tectonics and rivers (analysis)		
Dec 4/Th	18. Alaskan tectonics	Mazzotti 02	abstract
Dec 7/SUN	SUNDAY LAB 9: Anchorage geomorphology (field)		lab 7 report
Dec 9/T	19. Humans as geomorphic agents	Wilkinson 05	abstract
Dec 10/W	LAB: Catchup and exam review		lab 8 report

Notes: Readings from Summerfield ('S'), McPhee ('M'), and peer-reviewed journals should be completed before class on the date listed. Additional readings and handouts may be assigned occasionally as the session progresses. • Freewrites, abstracts, and lab reports are due on the date listed. • Labs labeled 'analysis' are indoors; be prepared for hours outdoors during 'field' labs. • Quizzes, either in class or take-home, may occur at any time.