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 3:00-5:50 pm, GH 301; 2 day-long weekend fieldtrips

Instructor Michael Loso
Office hours: Monday 1:00-2:30; Tuesday/Thursday 10:30-noon; and by appointment • Grant Hall 303C
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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 accommodations, please 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.

- Final exam 30%
- Midterm exam 20%
- Lab assignments, including problems sets and quizzes 40%
- 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)

Date/Day	Topic	Readings
Sep 27/Th	1. Forcing mechanisms-tectonics and climate	S 3-30 read for Tuesday…
Oct 2/T	2. Crustal scale deformation and isostasy	S 31-55
Oct 3/W	**LAB 1:** Isostasy	
Oct 4/Th	3. Orogenic deformation	S 57-83
Oct 9/T	4. Physical weathering/production of sediment	S 129-161
Oct 10/W	**LAB 2:** Coseismic deformation	
Oct 11/Th	5. Soil nomenclature and taxonomy	
Oct 14/Sun	**LAB 3: All-day field trip:** local soils	D 139-150
Oct 16/T	6. Water in the landscape	
Oct 17/W	**LAB 4:** Wetlands	D 169-182
Oct 18/Th	7. Hillslopes and mass wasting	S 163-189; M Los Angeles
Oct 23/T	8. Fluvial mechanics and erosion	S 191-205
Oct 24/W	**LAB 5:** Rivers	D 183-200
Oct 25/Th	9. Fluvial landforms I	S 207-233 327-340
Oct 30/T	10. Fluvial landforms II	M Atchafalaya
Oct 31/W	**LAB:** Catchup and exam review	
Nov 1/Th	Midterm exam	
Nov 6/T	11. Quaternary history and climate	S 345-367
Nov 7/W	**LAB 6:** Glacier reconstruction and climate	
Nov 8/Th	12. Glacial mechanics and erosion	S 260-275
Nov 13/T	13. Glacial deposits and landforms	S 275-290
Nov 14/W	**LAB 7:** Glacial landforms	D 109-138
Nov 15/Th	14. Periglacial landscapes	S 293-311
Nov 20/T	15. Dating techniques for surface processes	
Nov 21/W	**No lab today**	
Nov 22/Th	**No class**-Happy Thanksgiving	
Nov 27/T	16. Volcanism and igneous landforms	S 107-126;
Nov 28/W	**LAB 8:** Stratigraphy and soil texture	
Nov 29/Th	17. Coastal and aeolian processes	S 243-257 313-327
Dec 4/T	**No class**-attend senior project presentations	
Dec 5/W	**LAB 9:** Anchorage bowl geomorphology	
Dec 6/Th	18. Humans as geomorphic agents	M Cooling the Lava
Dec 11/T	19. Guest lecture-Loso at APU	
Dec 12/W	**No lab today**	
Dec 13/Th	Final exam	

Notes: Reading assignments from Summerfield ('S'), Dilley ('D'), and McPhee ('M') should be completed before class on the date listed. Additional readings and handouts may be assigned occasionally as the session progresses. • Lab assignments will be due at the beginning of class the first Tuesday after lab. Specific criteria for these assignments (which will include essays, short scientific reports, and problem sets) will be given at the time of each lab session. • Weekly quizzes, covering materials from the week before, will typically be given on Thursday mornings, but may occur at any time.