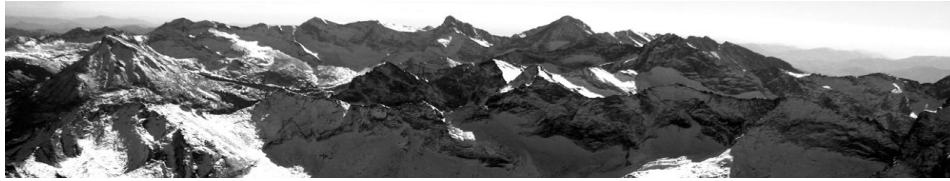


Geology 602: Climate, Tectonics and Erosion (Advanced Geomorphology)



Spring 2007
Monday and Wednesday, 9:00-10:15 AM

Instructors:

Ben Crosby, PS 227, 282-2949, crosbenj@isu.edu
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Course Goals

- (1) To investigate the interaction between climate, tectonism and geomorphic processes.
- (2) To learn methods for evaluating past and present climatic, tectonic and geomorphic processes.
- (3) To improve skills of literature research, data collection and analysis, and oral and written communication.

Text:

Tectonic Geomorphology by Burbank and Anderson, 2001, Blackwell Scientific (BA);
articles from the refereed literature to be used liberally

Field trip:

This class will join with the Field Seminar class (GEOL 491/591) for a one week trip along the Eastern side of the Sierra Nevada and through Death Valley. It will provide an excellent opportunity to witness many of the features and processes that we will discuss during the semester. If logistically feasible, we will provide opportunities for you to collect field data relevant to final projects you might pursue.

Grading:

20% *Midterm exam*

40% *Major research projects*: In the second half of the semester everybody will complete two research projects. The projects will involve oral presentations. The independent project is worth 25% of your grade and the collaborative project is worth 15%.

20% *Homework and class presentations*: You will be asked to study field relations, complete problem sets, critique pertinent literature, make class presentations, and interpret data from readings, internet, digital topography, etc.

10% *Student-led discussion and class participation*: We will discuss text and other readings in class. For the success of the course, it is essential that everyone come to class having read the assignments and prepared for discussion.

10% *Literature journal*: You will be asked to maintain a journal of the literature you read, with an entry summarizing and critiquing each reading. This journal is for your future use as well as to keep you focused and up-to-date through the semester.

Date	Day	Lect	Lecture Topic	Text	Assignments
8-Jan	M	1	Introduction	Ch 1	
10-Jan	W	2	Introduction	Ch 1	
15-Jan	M		HOLIDAY		
17-Jan	W	3	Climate - Taking Measure of Climate	articles	
22-Jan	M	4	Climate - Spatial/Topographic Control on Climate	articles	
24-Jan	W	5	Climate - Past Climates over different timescales	Ch 2	Ass. 1 due
29-Jan	M	6	Climate - Climate Variability, Geomorphic Markers and the Processes that Create Them	Ch 2	
31-Jan	W	7		Ch 2	
5-Feb	M	8	Timing in the Landscape - Methods and Applications	Ch 3	
7-Feb	W	9		Ch 3	Ass. 2 due
12-Feb	M	10	Rock Uplift, Exhumation and Isostasy (England-molnar)	Ch 7	
14-Feb	W	11	Thermochronology: Measuring Past Deformation	Ch 6, Ch 3	
19-Feb	M		HOLIDAY		
21-Feb	W	12	GPS: Measuring Active/Recent Deformation	Ch 6, Ch 3	
26-Feb	M	13	GPS: Measuring Active/Recent Deformation	Ch 5, Ch 3	Ass. 3 due
28-Feb	W		Student GPS Presentations	Ch 5, Ch 3	
5-Mar	M		MIDTERM EXAM		
7-Mar	W	14	Measuring Active/Recent Deformation: InSAR	Ch 5, Ch 3	
12-Mar	M		SPRING BREAK!		
14-Mar	W				
19-Mar	M	15	Timescales of the Interaction between Climate, Erosion and Tectonics: The Holocene	Ch 8	Start Project 1
21-Mar	W	16		Select Readings	
26-Mar	M	17	Paleoseismicity	Ch 6	Independent Topics
28-Mar	W	18		Select Readings	
2-Apr	M	19	Progress Presentations on Independent Projects		
4-Apr	W	20	Timescales of the Interaction between Climate, Erosion and Tectonics: Intermediate Time Scales	Ch 9	
9-Apr	M	21		Select Readings	
11-Apr	W	22	Discussion of Field Trip, Final Report Due: Project 1	Select Readings	
16-Apr	M		FIELD TRIP TO EASTERN CALIFORNIA		
18-Apr	W				
23-Apr	M	24	Timescales of the Interaction between Climate, Erosion and Tectonics: The Cenozoic	Ch 10	Project 2 (Collaborative)
25-Apr	W	25		Select Readings	
30-Apr	M	26	Case study 3: Southern Alps and other, NZ	Select Readings	
2-May	W		Final Group Presentations		
9-May	W		No Class - Projects Due by 5pm		End Project 2

Our program is committed to all students achieving their potential. If you have a disability or think you have a disability (physical, learning disability, hearing, vision, psychiatric) which may need a reasonable accommodation, please contact the ADA Disabilities & Resource Center located in Graveley Hall, Room 123, 282-3599 as early as possible.