

# **GEO 3325 – GEOMORPHOLOGY**

## **SOUTHWEST TEXAS STATE UNIVERSITY, SPRING 2003**

**Instructor:** Mark A. Fonstad

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**Office Hours:** 8:30 AM to 10:00 AM Mondays, Wednesdays, and Fridays

**Class Time:** 10:00 AM to 10:50 AM Mondays, Wednesdays, and Fridays

**Classroom:** Evans Liberal Arts (ELA) Building, Room 316

**Course Line Number:** 243843

### **COURSE DESCRIPTION**

This course provides a study of landforms, the processes and materials that form them and change them over time. Students will be introduced to bibliographic research and the interpretation of landforms and landscapes in the field from photographs or maps. This course will provide a comprehensive, contemporary overview of geomorphology. It will cover all the major subfields of the discipline ranging from earth materials to endogenic and exogenic processes and forms. We will focus, however, on those aspects that have been studied by contemporary practicing geomorphologists, such as fluvial, glacial, eolian, and coastal systems. We will follow the process—materials—forms approach developed by the founder of American geomorphology, Grove Karl Gilbert, but presented in the contemporary systems framework. This course should provide you with a working foundation in this subject that is held so dear by a cadre of geographers and geologists.

**Prerequisite:** Geo 2410 or Geol 1410 or equivalents.

### **LEARNING OUTCOMES**

**Knowledge outcomes.** By the end of this course, you should be able to understand intermediate principles of how the earth's landform system "works" within its relationship with driving variables such as geological materials, tectonics, climate, the biosphere, and human agency. In addition, you should have developed a considerable understanding of the specific endogenic and exogenic processes and landforms on the earth. Toward this end, an integral part of this course will be lectures, class assignments, and a research paper.

**Skills outcomes.** During the class assignments of this course, you will learn skills used in the description and interpretation of landforms and landform change. These include the development of your abilities to interpret and extract information from physical maps and aerial photography, development and testing of your own hypotheses of landform behavior through space and time, and your introduction towards using specialized tools to measure particular characteristics of many of the earth's geomorphic features.

## COURSE MATERIALS

Readings for this class will be from the textbook, Global Geomorphology: An Introduction to the Study of Landforms Michael A. Summerfield (1996) available at the SWT Bookstore. Additional materials will occasionally be handed in class at no charge to the student.

## EVALUATION AND GRADING POLICIES

I will evaluate your performance and assign grades based on three major areas of work in this course. First, I will assess your general geomorphic knowledge through two (noncumulative) exams. Second, students will complete four class assignments. These exercises will provide you with experience in identifying and analyzing landforms from topographic maps and air photos. Finally, a significant individual written research project is also used to evaluate your final grade. All students are expected to prepare assignments by the scheduled time.

All students are expected to take exams at the scheduled time. Make up exams will be given to students who have excused absences; however, make up exams will be different than those given at the scheduled time, and all make up exams will be given on the same day as the Final Exam. Class exercises that are late are subject to 5 points deduction for each day late.

There is a maximum of 400 points for all of the lecture exams, class assignments, and the research project. The basis for grading will be as follows: 100 points for each of the two exams, 25 points for each of the four class assignments, and 100 points for the completed research paper. The final grades will be determined based on the following rules:

A	≥90% (≥360 points)
B	≥80% and <90% (320 – 359 points)
C	≥70% and <80% (280 – 319 points)
D	≥60% and <70% (240 – 279 points)
F	<60% (< 240 points)

**Field trips.** There will be two optional field trips during the semester. If you attend a field trip, you will receive five additional points. The first will be to Natural Bridge Caverns on Saturday, February 15 at 9 am. The second will be to University Camp on the Blanco River for a field exercise on Saturday, March 1 at 1:00 pm. If you attend a trip and complete a 2-page trip report, you will receive up to an additional 10 points (5 for the attendance, 5 for the report).

## CLASSROOM AND ATTENDANCE POLICIES

Good attendance in the class is key to your success in this course. First, the examinations will require knowledge from previous weeks. Second, the individual class projects and the research project will require a deep familiarity with class material.

If you must miss class because of an illness, a personal emergency, or some other extenuating circumstance, please contact me as soon as possible so I can make alternative arrangements for you (this is key). Of course, good attendance means more than just

showing up for class. Please read and adhere to the policy on classroom etiquette that appears below. These codes of conduct will allow everyone to participate equally as learners. Thank you for your cooperation.

In the Department of Geography, instructors strive to create an atmosphere of mutual trust and respect in which learning, debate, and intellectual growth can thrive. Creating this atmosphere, however, requires that instructors and students work to achieve a classroom in which learning is not disrupted. At the most basic level, this means that everyone should attend class, be prepared with readings and assignments completed, and that students pay attention. This means no conversations with friends, reading the newspaper, coming late, or leaving early. Such behavior is disruptive to the instructor and to your fellow classmates.

### **STUDENTS WITH DISABILITIES**

Students with special needs (as documented by the Office of Disability Services) that will require compensatory arrangements must contact the instructor no later than the fourth class period to discuss specific arrangements and logistics. Students who have not already done so will be required to contact the Office of Student Disability Services located at LBJ5-5.1 (245.3451). *SWT is dedicated to providing these students with necessary academic adjustments and auxiliary aids to facilitate their participation and performance in the classroom.*

### **SWT ACADEMIC HONESTY POLICY**

Learning and teaching take place best in an atmosphere of intellectual fair-minded openness. All members of the academic community are responsible for supporting freedom and openness through rigorous personal standards of honesty and fairness. Plagiarism and other forms of academic dishonesty undermine the very purpose of the university and diminish the value of an education. Specific sanctions for academic dishonesty are outlined in *SWTexan*.

#### **Schedule by Week**

<b>Week</b>	<b>Topics</b>	<b>Readings</b>
Jan 13, 15, 17	Class Introduction History and philosophy of geomorphology	Chapter 1
Jan 20, 22, 24	<i>No Class Monday (Martin Luther King, Jr. Day)</i> Global morphology and tectonics	Chapter 2
Jan 27, 29, 31	Tectonic and intrusive geomorphology	Chapter 3 & 4
Feb 3, 5, 7	Volcanic landforms, weathering & karst <i>Exercise 1 due Wednesday, February 5</i>	Chapter 5 & 6
Feb 10, 12, 14	Slope processes and forms	Chapter 7
Feb 17, 19, 21	Fluvial processes and forms	Chapter 8 & 9

<b>Feb 24, 26, 28</b>	Eolian processes and forms <i>Exercise 2 due Wednesday, February 26</i>	Chapter 10
<b>Mar 3, 5, 7</b>	<b>Exam 1 (Monday, March 3)</b> <i>No Classes Wednesday &amp; Friday – (AAG)</i>	
<b>Mar 10, 12, 14</b>	<i>No Classes – Spring Break</i>	
<b>Mar 17, 19, 21</b>	Glacial processes and forms	Chapter 11
<b>Mar 24, 26, 28</b>	Periglacial forms, Quaternary history <i>Exercise 3 due Wednesday, March 26</i>	Chapter 12
<b>Mar 31, Apr 2, 4</b>	Coastal processes and forms	Chapter 13
<b>Apr 7, 9, 11</b>	Climate change and landform development <i>Exercise 4 due Wednesday, April 9</i>	Chapter 14
<b>Apr 14, 16, 18</b>	Zoogeomorphology	
<b>Apr 21, 23, 25</b>	Landscape development and planetary forms	Chapter 18 & 19
<b>Apr 28, 30, May 2</b>	The research frontier in geomorphology <i>Research papers due Monday, April 28</i> <i>No class Wednesday</i> <b>Final Exam, Friday, May 2, 8:00 – 10:30 am</b>	

### ABOUT THE INSTRUCTOR

The instructor is Mark A. Fonstad, assistant professor of geography. He is a specialist in theoretical fluvial geomorphology, spatial and hydrological analysis of river systems, and applied remote sensing. Mark received his Ph.D. in Geography from Arizona State University (2000) where he researched mountain fluvial systems and the prediction of channel change in New Mexico. For the past three years, Mark has directed the field research on channel morphology, watershed hydrology, and the remote sensing of rivers in Yellowstone National Park.

