

# Course Syllabus

**GEOG 735: Soil Geomorphology**

**Spring 2010**

Wednesday 2-4:45 pm Summerfield Hall 403

## **Instructor**

Dr. Daniel Hirmas

Lindley 415A (Tuesdays and Thursdays 2-4pm or by appointment)

## **Textbook**

*Soils: Genesis and Geomorphology* by Randy Schaetzl and Sharon Anderson (Cambridge University Press)

## **Field Equipment**

For this class you will need to provide a soil knife, hand lens (10x), water bottle for wetting soil textural samples (e.g., contact lens fluid bottle), measuring tape (2m metric), and a clip board.

## **Blackboard**

Reading assignments and grade information will be posted.

## **Objectives**

There are four objectives for this class: (1) Understand the interaction between pedogenic and geomorphic processes; (2) Become familiar with strategies and methodologies used in soil-geomorphic studies; (3) Become proficient in using soil taxonomy to identify and classify soils; and (4) Learn how to interpret soil-geomorphic data as a means of understanding earth surface processes and paleoenvironmental conditions.

## **Format**

Although I will spend some time lecturing on fundamental concepts of soils and geomorphology, most of our time together will be spent in a "journal club" format. That is, the reading(s) for the week will be divided up among the class and each student will be responsible for leading the discussion on his/her section.

## **Grading**

There will be no exams in this course. Your grade will be determined, however, from your participation in group discussions, preparedness in leading discussions, homework exercises, and field trip reports:

|               |     |
|---------------|-----|
| Participation | 20% |
| Preparedness  | 20% |
| Homework      | 30% |
| Reports       | 30% |

Homework assignments will include a biography of a noted soil-geomorphologist and soil classification exercises. There will be 3 field trips and, thus, 3 field trip reports.

## Tentative Course Lecture Schedule

| <b>Date</b> | <b>Topic</b>   | <b>Due</b>     |
|-------------|--|----------------|
| Jan 20      | Course overview; Introduction; Historic taxonomic developments; Description of taxonomic levels and orders                         |                |
| Jan 27      | Soil taxonomy and classification - Entisols, Inceptisols, Mollisols, Alfisols, Ultisols, Aridisols; Overview of soil geomorphology |                |
| Feb 3       | Soil taxonomy - Andisols, Gelisols, Histosols, Oxisols, Spodosols, Vertisols; Overview of soil geomorphology ( <i>cont.</i> )      | Homework 1     |
| Feb 10      | Soils and hillslope processes  | Homework 2     |
| Feb 17      | Soils and hillslope processes ( <i>cont.</i> )   |                |
| Feb 24      | Microtopography-pedogenic interactions   | Biography      |
| Mar 3       | Eolian processes and pedogenesis   |                |
| Mar 10      | Soil chronosequences   |                |
| Mar 24      | Field (KSR)  |                |
| Mar 31      | Soil chronosequences ( <i>cont.</i> )  | Field report 1 |
| Apr 7       | Field (KSU)  |                |
| Apr 14      | Soil geomorphology and ecology   | Field report 2 |
| Apr 21      | Soil geomorphology and geoarcheology   |                |
| Apr 28      | Field (Claussen)   | Homework 3     |
| May 5       | Soil stratigraphy  | Field report 3 |