

Introduction to Earth Systems and Physical Geography GEOG/ENVR 250

Instructor:

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The web site for the class can be found on Blackboard

<http://blackboard.richmond.edu/>

Course Schedule:

Class meets Tues/Thurs, 1:30-4:15, Weinstein Hall 221.

Course Objective:

Geography is the study of why things are where they are. Physical geography is an interdisciplinary science that brings together elements of climatology, hydrology, oceanography, geology, geomorphology, biology, and ecology to understand (1) the spatial aspects of the environment and (2) the processes responsible for creating these patterns.

This course introduces the characteristics and interrelationships of the Earth's climates, landforms, soils, and natural vegetation, with special emphasis on human relationships with their environment. A geographic approach emphasizes interconnectedness and spatial components of these relationships. The subject matter is particularly relevant to current scientific interest in global climate change. The course is divided into several parts: (1) concepts and tools of physical geography, (2) the atmosphere, (3) the hydrosphere, (4) the lithosphere and pedosphere, and (5) the biosphere. We will take a systems perspective and emphasize linkages between the Earth's systems.

Course Materials:

The required textbook for the course is *Geosystems: An Introduction to Physical Geography*. 7th ed. 2009. Robert W. Christopherson. Prentice-Hall. The companion web site for the text: http://wps.prenhall.com/esm_christopherson_geosystems_6/

The required laboratory book for the course is *Applied Physical Geography: Geosystems in the Laboratory*. 7th ed. 2009. Robert W. Christopherson and Charles E. Thomsen. Prentice-Hall. This book is **required** in class every day, as we will be doing exercises directly from it throughout the semester.

Additional readings from other sources will be assigned during the semester. These readings will be accessible through the course web page.

Student Evaluation:

The course grade will be based on three mid-term multiple choice and short answer exams and the final exam, which will be cumulative. Each mid-term will be worth 15% of the final grade. If you must miss an exam for a legitimate, documented reason you may be able to take the exam early. Students missing a test for a non-legitimate reason will score zero for that test. The final exam is worth 20% of your grade. No make-up final exams will be given. An additional 25% of the course grade will be for laboratory assignments. Labs are intended to reinforce lecture material and provide a deeper understanding of geographic principles. The material from lab exercises will not be covered in the exams.

Class attendance and participation is absolutely essential to keeping up with the material, and is worth 10% of your grade. Class exercises may occur at any time during the scheduled lectures. Absence from these class exercises will reflect negatively on your participation grade. As part of the participation grade, you must find and review 5 different physical geography stories from different media sources. One should be from the newspaper, one from radio, one from television, one from the web, and one from a peer-reviewed journal (a list of acceptable journals is provided on the course website). Overviews should be provided orally at the beginning of class. Written summaries should clearly describe how the course content relates to the issue being described in the article, and should be no more than 1 page in length. Each student will be allotted class time for a maximum of 1 review per class, so do not wait until the end of the semester to begin.

(15% each) Three in-class mid-term exams
 (20%) Cumulative final exam (emphasizing biosphere unit)
 (10%) Class participation
(25%) Laboratory assignments
 100%

- The grading scheme will follow standard University of Richmond guidelines.

Note: If any student has a physical or mental limitation that requires an accommodation or an academic adjustment, please arrange a meeting with me at your earliest convenience.

Fall 2009 Schedule

This schedule will be followed approximately. Some changes may be made as the class proceeds but the test dates will not change. Time permitting, we will conclude each major section with an in-class review. Chapter readings in *Geosystems* textbook provided in parentheses.

Date	Day	Topic
INTRODUCTORY MATERIAL - Concepts and Tools of Physical Geography		
Tues	Aug 25	Introduction to course. Definitions. Spheres. Scientific method.
Thurs	Aug 27	The Earth in the Solar System. Earth geometry. Map projections. Scale and scale interaction. Contour Maps. (Ch. 1)
Tues	Sept 1	Observation. Remote sensing. GIS. GPS. (Ch. 1)
Thurs	Sept 3	Systems and systems analysis. (Ch. 1)
THE ATMOSPHERE		
Tues	Sept 8	Energy. The Sun. Radiation Balance. Seasons. Surface energy balance and temperature. (Ch. 2, 5)
Thurs	Sept 10	Atmospheric composition and structure. (Ch. 3)
Tues	Sept 15	General circulation of the atmosphere and oceans. (Ch. 6)
Thurs	Sept 17	Hurricanes and extreme weather systems. (Ch. 8)
Tues	Sept 22	FIRST TEST
THE HYDROSPHERE		
Thurs	Sept 24	The Hydrologic Cycle. Distribution of Earth's water. (Ch. 7, 9)
Tues	Sept 29	The Soil-Water Balance. Water supply and demand. (Ch. 9)
Thurs	Oct 1	Precipitation processes and global climate. (Ch. 8, 10)
Tues	Oct 6	Floods and droughts. (Ch. 9, 14)
Thurs	Oct 8	The ENSO phenomenon. (Ch. 10)
Tues	Oct 13	No Class (Midterm Break)
Thurs	Oct 15	SECOND TEST
THE LITHOSPHERE AND PEDOSPHERE		
Tues	Oct 20	Introduction to the Lithosphere. Geologic structure of the Earth. Geologic cycles. (Ch. 11)
Thurs	Oct 22	Plate tectonics. Crustal formation processes. Volcanism. (Ch. 12)
Tues	Oct 27	Crustal deformation processes. Earthquakes. Mountain building. (Ch. 12)
Thurs	Oct 29	Soils, weathering and mass movement. (Ch. 13, 18)
Tues	Nov 3	Erosion, transport, and deposition. (Ch. 14, 15, 17)
Thurs	Nov 5	Coastal and Marine systems. (Ch. 16)
Tues	Nov 10	THIRD TEST

THE BIOSPHERE AND EARTH LINKAGES

Thurs	Nov 12	Biomes and biodiversity. (Ch. 20)
Tues	Nov 17	Ecosystems. Plant successions. Landscape legacies. (Ch. 19)
Thurs	Nov 19	Biotic processes as agents of pattern. TIB. SLOSS. (Ch. 19)
Tues	Nov 24	Fires and disturbance. (Ch. 19)
Thurs	Nov 26	No Class (Turkey Day)
Tues	Dec 1	Climate change - evidence, nature, causes and consequences. (Ch. 4, 10)
Thurs	Dec 3	Last class overview.
Fri	Dec 11	FINAL EXAM (2-5pm)