

SYLLABUS

Fall, 2007

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| Course | Geology 103 - Environmental Earth Science |
| Instructor | Dr. William Pirkle |
| Office | 225 Sciences Building |
| Meeting Schedule | Lecture 10:50 - 12:05 TTH Rm. 200 Sciences Bldg. Laboratory 001 1:40 - 4:20 T Rm. 216 Sciences Bldg. Laboratory 002 1:40 - 4:20 Th Rm. 216 Sciences Bldg. |
| Conference Times | 9:30 - 11:00 MW; 12:15 -1:15 Th Other times by appointment |
| Email | Pirkle@sc.edu |
| Texts | Lecture - <u>Introduction to Environmental Geology</u> , 3rd edition, by E. A. Keller Laboratory - <u>Environmental Issues</u> , 3rd edition, by Astwood and Carpenter |

COURSE OUTLINE

- I. Earth Materials and Processes
- II. Geological Hazards
 - A. Earthquakes
 - B. Volcanoes
 - C. River Flooding
 - D. Landslides
 - E. Coastal Hazards
- III. Human Interaction with the Environment
 - A. Hydrology and Human Use
 - B. Waste Management
- IV. Minerals, Energy, and Environment
 - A. Mineral Resources and Environment
 - B. Energy Resources and Environment

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| Objective | To introduce some of the major environmental issues of the day and provide an opportunity to acquire the technical background, in geology, necessary to understand these issues. |
| Emphasis | The scientific analyses of major environmental issues with special emphasis on their geology and hydrogeologic aspects. |
| Assessment Methods | By means of exams, written laboratory exercises and group problem solving activities, students are given an opportunity to demonstrate understanding of environmental issues and the scientific principles by which the environmental issues may be addressed. |

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| Grading Policy | <p>Lecture - 75%</p> <p>20% each, two exams (Sept. 25, Oct. 30)</p> <p>10% poster (research) presentation (Wed., Nov. 14, tentative)</p> <p>25% final exam (Tuesday, Dec. 11, 11:00 a.m.)</p> <p>Laboratory - 25%</p> |
| Extra Credit Opportunities | <p>A total of 20 points may be earned for various extra credit activities. Extra credit points are added to your final exam grade. Extra credit activities will be announced in class and on Blackboard. Extra credit assignments typically are due the next class period after the scheduled activity.</p> |
| Attendance | <p>Regular attendance is vital to fulfilling responsibilities in this class. There will be no make up classes or laboratories. Arrangements for assignments missed due to an excused absence must be made within one week of the excused absence. Appropriate documentation is required.</p> |
| Make-up Exams | <p>Make-up exams will only be given under extenuating circumstances in accordance with University policy. Appropriate documentation is required. Make-up exams may be of a different format than regularly scheduled exams.</p> |
| Late Assignments | <p>Late assignments typically are lowered one letter grade per day late.</p> |
| Classroom Deportment | <p>Please make every effort to be on time to class. Late arrivals disrupt class and make it difficult for others to hear while entering. Turn off cell phones while in class or lab. No eating in class or lab. Please be courteous to and considerate of other class members.</p> |
| Disability Policy | <p>If you have a physical, psychological, and/or learning disability that might affect your performance in this class please contact the Office of Disability Services, 126A B&E, (803) 641-3609, as soon as possible. The Disability Services Office will determine appropriate accommodations based on medical documentation.</p> |

**Tentative Schedule
Geology 103
Fall, 2007**

Assignments in Keller, 3rd edition, Introduction to Environmental Geology, to be read before and after class.

| DATE | ASSIGNMENTS | TEXT CHAPTERS |
|-------------|--|----------------------|
| Aug. 23 | Introduction & Fundamental Concepts | 1 |
| 28 | Earth Processes | 2 |
| 30 | Earth Materials | 3 |
| Sept. 4 | Natural Hazards | 4 |
| 6 | Earthquakes | 5 |
| 11 | Earthquakes (continued) | 5 |
| 13 | Volcanoes | 6 |
| 18 | Volcanoes (continued) | 6 |
| 20 | Rivers and Flooding | 7 |
| 25 | EXAM I | |
| 27 | Rivers and Flooding (continued) | 7 |
| Oct. 2 | Landslides and Related Phenomena | 8 |
| 4 | Coastal Hazards | 9 |
| 9 | Coastal Hazards (continued) | 9 |
| 11 | Fall Break | |
| 16 | Water | 12 |
| 18 | Water Pollution & Treatment | |
| 23 | Water Pollution and Treatment (continued) | 12 |
| 25 | Waste Management | 16 |
| 30 | EXAM II | |
| Nov. 1 | Waste Management (continued) | 16 |
| 6 | Work on Research Presentation | |
| 8 | Mineral Resources | 13 |
| 13 | Mineral Resources (continued) | 13 |
| 15 | Mineral Resources (continued) | 13 |
| 20 | Mineral Resources (continued) | 13 |
| 22 | Thanksgiving | |
| 28 | Energy Resources | 14 |
| 30 | Energy Resources (continued) | 14 |
| | | 14 |
| | | 14 |
| Dec. 5 | Energy Resources (continued) | 14 |
| 7 | Energy Resources (continued) and Course Review | |

Final Exam: 11:00 a.m., Tuesday, December 11, Room 200

**Geology 103 Laboratory
Fall, 2007
Tentative Schedule**

Lab 001 - 1:40-4:20 T, Rm. 216 Sci. Bldg.

Laboratory Manual : Astwood and Carpenter, *Environmental Issues*, 3rd edition

| | | | Lab Manual Page |
|-------|----|--|-----------------|
| Aug. | 28 | Introduction - What Should/Would You Do? | 1 |
| Sept. | 4 | Population Growth | 11 |
| | 11 | Urban Land Use | 63 |
| | 18 | Geologic Hazards | Handout |
| | 25 | Sand River - Field Trip | Handout |
| Oct. | 2 | Coastal Land Use | 75 |
| | 9 | No Lab | |
| | 16 | Aiken Water Supply – Field Trip | 15 |
| | 23 | Horse Creek Waste Water Treatment Plant – Field Trip | 19 |
| | 30 | Chem Nuclear Low Level Radioactive Waste Disposal – FT | Handout |
| Nov. | 6 | No Lab | |
| | 13 | Solid Waste Disposal - FT | Handout |
| | 20 | Locating Mineral Resources | 51 |
| | 27 | Using Mineral Resources to Build Cities- Downtown Aiken FT | Handout |
| Dec. | 4 | Energy Use - Cost of Energy | 45 |

Grading Policy: You will be able to earn up to 10 points per laboratory for a possible total of 130 points. Exercises will be group problem solving activities. Your paper will be graded on completeness, thoroughness, correctness, creativity, and neatness. Laboratory counts 25% of the overall course grade.

Lab Policies: Policies regarding attendance, make-up work and disability needs are the same in lab as in lecture.

Field Trips: Wear outdoor clothing. Long pants and good walking shoes are recommended. All trips will be made in USCA vehicles.

Extra Credit Opportunities (20 point max. added to lecture final exam)

- a) Nov. 3 (Saturday) - Congaree National Park (10 pt. max.)
(Leave USCA 8:15 a.m., return approximately 3:00 p.m.)
- b) Dec. 4 - lab project on "Rainbow Warrior" (10 pt. max.)
- c) Environmental seminars - e.g. CSRA Geological Society (5 pt. each max.)
(CSRA Geological Society meets the last Tuesday of each month usually at 7:00 p.m. in Room 327 Sciences Building, USCA)

**Fall, 2007
Tentative Schedule**

Lab 002 - 1:40-4:20 Th, Rm. 216 Sci. Bldg.

Laboratory Manual: Astwood and Carpenter, *Environmental Issues*, 3rd edition

| | | | Lab Manual Page |
|-------|----|--|-----------------|
| Aug. | 23 | Introduction - What Should/Would You Do? | 1 |
| | 30 | Population Growth | 11 |
| Sept. | 6 | No Lab | |
| | 13 | Urban Land Use | 63 |
| | 20 | Geologic Hazards | Handout |
| | 27 | Sand River - Field Trip | Handout |
| Oct. | 4 | Coastal Land Use | 75 |
| | 11 | No Lab | |
| | 18 | Aiken Water Supply – Field Trip | 15 |
| | 25 | Horse Creek Waste Water Treatment Plant – Field Trip | 19 |
| Nov. | 1 | Chem Nuclear Low Level Radioactive Waste Disposal – FT | Handout |
| | 8 | Solid Waste Disposal - FT | Handout |
| | 15 | Locating Mineral Resources | 51 |
| | 22 | No Lab | |
| | 29 | Using Mineral Resources to Build Cities- Downtown Aiken FT | Handout |
| Dec. | 6 | Energy Use - Cost of Energy | 45 |

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