University of South Carolina
Carolina Core

GEOLOGY 101
INTRODUCTION TO THE EARTH

BULLETIN INFORMATION
GEOL 101 - Introduction to the Earth (4 credit hours)
Course Description:
Origin and nature of the earth with emphasis on internal processes and phenomena such as earthquakes, volcanoes, and mountain building; surface processes, including landform evolution.
Note: Three lectures and three laboratory hours each week.

SAMPLE COURSE OVERVIEW
This course introduces the science of Geology, with primary emphasis on the physical processes that form and transform the Earth.

ITEMIZED LEARNING OUTCOMES
Upon successful completion of Geology 101, students will be able to:

1. Demonstrate basic understanding of the scientific method
2. Explain the principal processes involved in Earth formation and evolution
3. Discuss the fundamental concepts of plate tectonics, the rock cycle, and geologic time
   Interpret the significance of information about the Earth in the popular media
4. Apply the language of science, and in particular, Earth science
5. Discuss the ways in which Earth science impacts society on a daily basis

SAMPLE REQUIRED TEXTS/SUGGESTED READINGS/MATERIALS

1. Jordan & Grotzinger, "The Essential Earth" E-book or hardcopy
2. LAB MANUAL: R. M. Busch, ed. "Laboratory Manual in Physical Geology," 9th ed.

SAMPLE ASSIGNMENTS AND/OR EXAM

1. **Midterm Exam 1, Midterm Exam 2, Midterm Exam 3, Final Exam**
   a. All exams will be based on the lectures and textbook readings. There will be a total of four exams, including the Final Exam. Each exam will consist of 50 questions. Exam questions may be multiple choice or true or false. The exams will be given during the normal class meetings, with the exception of the Final Exam. The Final Exam will be cumulative.
2. **Laboratory**
3. **Attendance and lab completion**
4. **Weekly quizzes**
5. **Lab Midterm**
6. **Lab Final**

7. **Class Participation**
    a. EVALUATION: This course employs a variety of methods to measure student performance and mastery of the concepts and principles presented. Weekly laboratory exercises are based on hands-on analysis of geologic materials, processes, and concepts, and require students to document their work on laboratory handouts. Mastery of the lab material is gauged by weekly lab quizzes covering the concepts from the preceding week, as well as a comprehensive laboratory midterm and final. Lectures involve regular use of a classroom response system, both to record student participation in class meetings, as well as to evaluate student comprehension of important terminology, concepts, and principles. These questions, drawn from the lecture material and assigned reading, also serve as a review for material which will appear on regularly scheduled exams during the course of the semester.
    b. iCLICKER: This course makes extensive use of a classroom response system (called iClicker) to evaluate student progress in mastering concepts. The iClicker remote is a required piece of equipment for this class.

SAMPLE COURSE OUTLINE WITH TIMELINE OF TOPICS, READINGS/ASSIGNMENTS, EXAMS/PROJECTS

Class 1: **Introduction - Course Overview**
Ch. 1

Class 2: **The Earth System**
Ch. 2 Introduction to Lab

Class 3: **Plate Tectonics** I
Ch. 3

Class 4: **Plate Tectonics II**
Ch. 3

Class 5: **Minerals**
Ch. 4 Minerals

Class 6: **The Rock Cycle**
Ch. 4

Class 7: **Igneous Processes and Rocks**
Ch. 5

Class 8: **Sedimentary Processes and Rocks**
Ch. 6 Igneous Rocks

Class 9: **Metamorphic Processes and Rocks**

Ch. 7

Class 10: **Review - Exam 1**

Class 11: **EXAM 1**
Sedimentary Rocks

Class 12: **Mountain Building**
Ch. 7

Class 13: **Faults and Folds I**
Ch. 7

Class 14: **Faults and Folds II**
Ch. 7 Metamorphic Rocks

Class 15: **Geologic Time I**
Ch. 8

Class 16: **Geologic Time II**
Ch. 8

Class 17: **Early History of Terrestrial Planets**
Ch. 9 Geologic Time

Class 18: **Evolution of Continents**
Ch. 9

Class 19: **Geobiology I -**

Class 20: **Geobiology II -**
LAB MIDTERM

Class 21: **Volcanoes and Volcanism**
Ch. 5

Class 22: **Review – Exam 2**

Class 23: **EXAM 2**
Topographic maps

Class 24: **Earthquakes I**
Ch. 13

Class 25: **Earthquakes II**
Ch. 13

Class 26: **Earth's Interior I**
Ch. 13 Stream Processes

Class 27: **Earth's Interior II**
Ch. 13

Class 28: **The Climate System**
Ch. 10

Class 29: **Glaciers and Ice Ages**
Ch. 10 Faults and Folds

Class 30: **Global Climate Change**
Ch. 10

Class 31: **Review – Exam 3**

Class 32: **EXAM 3**
Earthquakes

Class 33: **Weathering and Erosion**
Ch. 11

Class 34: **The Hydrologic Cycle**
Ch. 11

Class 35: **Groundwater**
Ch. 11 Coastal Processes

Class 36: **Streams and Floods**
Ch. 12

Class 37: **Deserts**
Ch. 12

Class 38: **Coasts and Oceans**
Ch. 12 LAB FINAL

Class 39: **MAKE-UP EXAM**

Class 40: **Earth and Society I**

Ch. 14

Class 41: **Earth and Society II**
Ch. 14

Class 42: **Review – Final Exam**

FINAL EXAM ACCORDING TO University exam schedule