

SYLLABUS  
PART I  
EDISON COMMUNITY COLLEGE  
GLG 122S HISTORICAL GEOLOGY AND CONTEMPORARY TOPICS  
4 CREDIT HOURS

**COURSE DESCRIPTION**

Introduction to the physical and biological evidence recorded in rocks that are used to interpret the geologic history of the Earth and topics that relate to the future quality of life on Earth, such as climatic change, environmental degradation, and related concerns. Three hours of lecture and two hours of lab each week. Lab fee.

**COURSE GOALS**

The student will:

Bloom's Level		Gen Ed Outcomes
1	1. State the major premises of the concept of uniformity (uniformitarianism) and explain the historical impact of this principle.	2, 6
2	2. Describe the formation of the earth and its solid crust and atmosphere from planetesimal accretion.	2, 6
2	3. Describe the geomorphology of terrestrial planets and relate their surface features to the earth's surface.	2, 6
2	4. Explain why various geomorphologies exist in surface environments different than that of the earth.	6
2	5. Describe sediment dating (relative time), by explaining when dating is appropriate, the relative age of all layers in a sequence, and why sediment layers are compared to the layers in other locations.	2, 6
2	6. Describe radiometric dating by explaining several radioactive isotopes used and the stable isotopes formed, what half-life means in terms of the given isotopes, and how this method helps to date sedimentary rocks.	2, 6
1	7. State in proper sequence all of the major divisions of the geologic time scale.	2, 6
2	8. Describe the important orogeny cycles that formed the North American continent.	2, 6
3	9. Given a cross-sectional drawing of sedimentary strata and igneous intrusions, determine the proper relative sequence of all rock units and observable erosional and tectonic events.	2, 6
1	10. Identify and describe the various types of fossil formations including: (1) unaltered remains, (2) carbonized remains, (3) permineralized and replacement types, (4) casts and molds, (5) indirect evidence.	2, 6
1	11. Identify the various fossil specimens of the major phyla of plants and animals that are representative of the major divisions of geologic time.	2, 6
1	12. List the phylogeny of life showing the main line of evolutionary development.	2, 6
2	13. Describe the early earth environment necessary for the abiogenic development of life.	2, 6
2	14. Explain how life, once established on earth, has permanently altered the natural environment.	2, 6
2	15. Describe the modern concept of evolution and explain the function of	2, 6

	natural selection and genetic mutation in the development of the species.	
2	16. Explain how the increasing release of greenhouse gasses could effect the earth's average temperatures.	2, 6
2	17. Explain the probable atmospheric chemistry that is thought to be the main reason for increasing ozone depletion.	2, 6
2	18. Discuss the effects of pyroclastic volcanic activity as a precursor to climatic change and how this would affect agriculture.	2, 6
2	19. Discuss the problem of landfills and pollution caused by toxic waste disposal.	2, 6
2	20. Discuss the problems inherent in increasing energy demands due to depletion of carbon fuel reserves and the problems inherent in nuclear energy production.	2, 6
2	21. Discuss how a geometrically increasing human population is the number one challenge to the earth's environmental life carrying capacity.	2, 6

### CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

### TOPIC OUTLINE

1. Evolution of the Earth and Solar System
2. Radiometric Dating
3. The Geologic Time Scale
4. Precambrian Geology
5. Paleozoic Geology
6. Mesozoic Geology
7. Cenozoic Geology
8. Organic Evolution
9. The Invertebrate Fossil Record
10. The Vertebrate Fossil Record
11. The Concept of Uniformitarianism
12. The Mechanism of Climatic and Atmospheric Change
13. Environmental Degradation and Toxic Waste