Effective Implementation date: Spring 2018, 201830

Required Syllabus Information – all must be included in the course syllabus

GEY 135
Course Title: Environmental Geol w/Lab: SC1
Course Credits: 4
Course Description: Introduces the subject of geology as it relates to human activities. Geologic hazards such as floods, landslides, earthquakes, and volcanoes are investigated. Mineral, energy, soil, and water resources are discussed in terms of their geologic formation and identification, usage by society, and associated environmental impacts. Land use issues, waste, and pollution are also examined.

GT Pathways Requirements:

Guaranteed Transfer (GT) Pathways Course Statement:
The Colorado Commission on Higher Education has approved GEY 135 for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT- SC1 category. For transferring students, successful completion with a minimum C– grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html.

NATURAL & PHYSICAL SCIENCES (N&PS) CONTENT CRITERIA – GT-SC1

1. The lecture content of a GT Pathways science course (GT-SC1)
    a. Develop foundational knowledge in specific field(s) of science.
    b. Develop an understanding of the nature and process of science.
    c. Demonstrate the ability to use scientific methodologies.
    d. Examine quantitative approaches to study natural phenomena.

2. The laboratory (either a combined lecture and laboratory, or a separate laboratory tied to a science lecture course) content of a GT Pathways science course (GT-SC1)
    a. Perform hands-on activities with demonstration and simulation components playing a secondary role.
    b. Engage in inquiry-based activities.
    c. Demonstrate the ability to use the scientific method.
    d. Obtain and interpret data, and communicate the results of inquiry.
    e. Demonstrate proper technique and safe practices.

COMPETENCIES & STUDENT LEARNING OUTCOMES FOR GT-SC1

Inquiry & Analysis:

4. **Select or Develop a Design Process**
    a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.
5. **Analyze and Interpret Evidence**

    a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
    b. Utilize multiple representations to interpret the data.
6. **<u>Draw Conclusions</u>**
    a. State a conclusion based on findings.

<u>Quantitative Literacy</u>:

1. Interpret Information
    a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
2. Represent Information
    a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

SYSTEM REQUIREMENTS:

REQUIRED COURSE LEARNING OUTCOMES

1. Discuss how non-geologic components of Earth's system, including human populations, interact with geology.
2. Relate plate tectonics to earthquakes, volcanoes, and the origin of mineral deposits.
3. Summarize information that might be useful in predicting and minimizing the risk from geologic hazards.
4. Identify the characteristics of glaciers and deserts and some of the geologic tools used to study climate change.
5. Explain the Earth's limited ability to provide resources and why it is important to manage resources responsibly.
6. Describe the geologic formation of soil, mineral, and fossil fuel resources as well as some of their uses and the environmental impacts associated with their extraction and/or use.
7. Discuss the pros and cons of energy produced by fossil fuels, nuclear fission, hydropower, wind power, solar energy, geothermal, etc.
8. Describe the types and effects of pollution on earth systems including soil, surface water, and ground water.
9. Discuss management strategies for municipal and hazardous chemical, biological, and radioactive waste.
10. Relate principles of land-use planning to the extraction and use of natural resources, soil conservation, and natural hazards such as floods and landslides.

REQUIRED TOPICAL OUTLINE

The required topical outline information MUST be included in the syllabi. It may be incorporated using one of the following variations: copying the topical outline as written below, integrating the topics within the assignment schedule, or listing the topics to be covered.

I. Earth system interactions related to geology
II. Plate Tectonics
III. Earthquakes

IV. Volcanoes
V. Streams and flooding
VI. Coastal hazards
VII. Mass movements
VIII. Glaciers, deserts, and climate
IX. Water resources
X. Soil resources
XI. Mineral resources
XII. Energy resources: fossil fuels
XIII. Energy resources: alternatives to fossil fuels
XIV. Pollution & environmental policy
XV. Waste disposal
XVI. Land use planning

Syllabi requirements, including legal compliance information must be included. Individual College syllabi guidelines may include additional information. Please contact your VPI/CAO for specific College requirements.