

GLY 3171
Geomorphology of the United States

Course Description: The study of the origin, evolution and description of the land forms that comprise the some of the most significant geomorphic features of the United States. Specific competencies include the study of the major geological processes and agents that form and fashion land forms, the examination of the present day status of the concept of land evolution to an understanding of the significant landforms of the United States, and the study of the most significant areas of the United States such as the Appalachian highlands, the Rocky Mountain systems and the Alaskan and Hawaiian Islands. This course is designed for upper level students pursuing a BS in Science Education.

3 Credits

Pre-requisites: GLY 1010, GLY 1100

Course competencies

Competency 1: The student will demonstrate a knowledge of the historical development of geomorphology.

The student will be able to

- a. Outline the early development of geomorphology and the people involved with its development.
- b. Analyze the problems confronting the development of geomorphic principles and concepts.

Competency 2: The student will understand the fundamental concepts of modern geomorphology.

The student will be able to

- a. Explain the “principle of uniformitarianism” and give examples of its application.
- b. Explain how geologic structures are a dominant control in the evolution of various landforms.
- c. Evaluate how a geomorphic process controls the development of distinctive landforms.
- d. Discuss why complexity is commonly involved with the development of the earth’s topography, rather than a single geologic process.
- e. Differentiate between monocyclic landscape and multicycle landscape.
- f. Indicate the age of most of the world’s features and the reason for the common age.
- g. Analyze how the development of present day land forms have been influenced by climatic changes and geological activity of the Pleistocene
- h. Demonstrate how climate influences the development of various landforms.

Competency 3: The student will gain a knowledge of the geomorphic processes that lower and level the earth’s surface.

The student will be able to

- a. Compare and contrast the processes of physical and chemical weathering, including examples of each process.
- a. Describe the processes of mass wasting and give examples of structures developed by mass wasting.
- b. Examine the erosional and depositional activities of streams, and give examples of stream-developed features.
- c. Classify the activities associated with ground water and give examples of ground water developed features.
- d. List coastal activities involved with erosion and deposition, giving several examples of features developed by waves, currents and tides.
- e. Discuss the erosional and depositional activities of wind, and give examples of the resulting erosional and depositional features.
- f. Explain the development and movement of glacial ice, and give examples of glacial erosional and depositional features.
- g. Analyze how man's activities have influenced the leveling of the earth's surface, and give examples of the activities.

Competency 4: The student will understand the processes that elevate the surface of the earth.

The student will be able to

- a. Summarize how stream activity produces an increase in relief of an area, and give examples of the common stream-produced features.
- b. Show how ground water can build up the earth's surface and give examples of the features involved with the buildup
- c. Discuss how coastal regions may be built up by waves, tides and ocean currents, and list the common features found in the coastal area.
- d. Illustrate how wind can cause the build up of the earth's surface, and give examples of the wind-produced features.
- e. Analyze how folding of the earth's crust elevates the earth's surface.
- f. Illustrate how faulting of the earth's crust elevates the earth's surface.
- g. Discuss how volcanoes elevate the surface of the earth.
- h. Analyze the relationship between folding, faulting, volcanic activity, and plate tectonics.
- i. Explain how extraterrestrial objects can elevate the surface of the earth.

Competency 5: The student will be familiar with the physiographic provinces of the United States.

The student will be able to

- a. Identify the physiographic provinces on a map of the United States.
- b. Evaluate the geomorphic processes involved in the development of each physiographic province.
- c. List several of the common geomorphic features found in each physiographic province.