SLO Presentation

GEOL
Date: 09-15-2022

ISLO

Civic Engagement

• Students will develop values and beliefs in their role as a member of local, national and global societies to promote truth, fairness and goodwill to others. They will use the democratic process to further their values and beliefs and recognize and accept differing perspectives based on cultural diversity. They will engage in actions which provide service to others and have a positive impact on their local community.

Communication and Expression

• Students will demonstrate the ability to effectively and appropriately communicate their thoughts and ideas both in written and oral forms. They will develop verbal and non-verbal delivery skills, in an appropriate manner, to communicate their ideas as well as evaluate the ideas of others in a wide variety of contexts.

Critical Thinking and Quantitative Reasoning

• Students will demonstrate the ability to recognize assumptions within an argument and actively and skillfully analyze underlying reasoning to develop a conclusion. They will apply qualitative and/or quantitative analysis to solve problems, predict outcomes, test hypotheses, and explore alternatives in an ethical manner.

Information Literacy

• Students will demonstrate the ability to determine when gathering additional information is necessary. They will use appropriate resources and technologies to locate, evaluate and incorporate the information when developing supporting arguments and drawing conclusions. Students will also develop the ability to understand any legal, ethical or social issues regarding the use of information.

Personal Knowledge and Responsibility

• Students will develop the necessary skills to define, maintain and complete their personal educational goals. They will learn to work independently to accomplish personal goals toward realizing their full potential academically, physically and emotionally whether for personal enrichment, further education or career advancement.

Science, Engineering, and Math

GEOL

Geology--ADT

• Students apply the scientific method.

• Students describe the role agents of erosion plays in shaping the earth's surface.

• Students explain the relative motion between tectonic plates at each of the three types of plate boundaries.

• Students identify rocks and minerals based on their physical properties.

• Students recognize the magnitude of the geologic time scale.

• Students recognize the role of constructive and destructive forces in the shaping of the earth's surface.

• Students use topographical maps to interpret the earth's surface.

CSLO

GEOL100 - Natural History of Southern California

• Students will identify major rock types observed during field trips.

• Students will identify topographic and geologic features during field trips.

• Students will show basic knowledge of geologic processes, structure, and history of field trip areas.

• Students will relate plate tectonic processes to geology of field trip areas.

• Students will describe the major weathering and erosional processes operating in field trip areas.

GEOL101 - Physical Geology

• Students demonstrate the ability to use the scientific method

• Students can describe the geologic processes, the relative movement of plates, and the distinguishing landforms associated with each type of plate boundary

• Students can use physical properties to identify minerals and can explain mineral forming processes

• Students can explain the rock cycle, differentiate among the three types of rocks, and use texture and composition to identify common rocks and their origins

• Students can describe the eruptive and physical characteristics of different types of volcanoes

• Students can describe the role weathering, mass wasting, and erosion play in shaping Earth's surface and can provide and/or identify examples of each of these processes

• Students can relate tectonic stresses to plate boundaries, geologic structures, crustal deformation, and the building of mountains

• Students can differentiate between constructive and destructive geologic processes, can explain the energy driving these processes, and can identify examples of each

GEOL102 - Physical Geology Lecture

• Students are able to describe the eruptive and physical characteristics of the 3 main types of volcanoes.

• Students can describe the differences between constructive and destructive geologic forces and provide a specific example of each.

• Students can explain how specific agents of mechanical and chemical weathering can weaken and break-down rock.

• Students compare and contrast the physical characteristics of each of the 3 types of stream channels

• Students describe the relative movement of tectonic plates at each of the 3 types of plate boundaries.

GEOL102L - Physical Geology Laboratory

• Apply physical properties (hardness, cleavage, streak, heft, etc.) to identify minerals

• Apply texture and composition to identify rocks

• Read topographic maps to locate landmarks, interpret topographic and geologic features, calculate gradient, and identify erosional and depositional landforms.

• Identify different forms of mass wasting and determine the trigger for the mass wasting event.

• Demonstrate the ability locate the epicenter of an earthquake using seismogram records.

GEOL103 - Environmental Geology Lecture

• A. Utilize the scientific method, conceptualize evolution of the Earth and human population growth through time (linear versus exponential growth), fundamentals of resource consumption (steady state versus diminishing versus growing pools, renewable versus nonrenewable resources), and create and utilize topographic maps to visualize surface features.

• B. Distinguish between and describe the formation of earth materials, and understand their significance in terms of hazards, resources, and interpreting past environments.

• C. Identify and assess risk associated with natural hazards such as earthquakes, tsunamis, volcanoes, floods, landslides, and coastal erosion.

• D. Understand the impact a growing human population has on the planet’s climate and vital resources, and identify future challenges and solutions

GEOL103L - Environmental Geology Laboratory

• Apply fundamental principals in environmental geology such as the scientific method, unit conversion, identifying and graphing population growth and changing resource pools, and linking tectonic evolution of the Earth to surface topography and geologic hazards

• Identify Earth materials, their use in understanding geologic processes, and the resources and hazards they present

• Apply knowledge of geologic processes to identify hazards and assess risk to urban environments.

• Critique anthropogenic interaction with, and assess impact on, earth processes and resources

GEOL105L - Introduction to Geoscience Field Methods

• Identify major rock types observed during field trip

• Students can use physical properties to identify minerals and rocks in the field.

• Identify topographic and geologic features

• Show basic knowledge of geologic processes and geologic structure of field areas and the ecologic characteristics, such as adaptive traits of flora and water chemistry

• Students identify and interpret geologic features in the field.

• Compile accurate geologic maps and cross-sections of field areas

• Students demonstrate basic knowledge of geologic processes and geologic structure of field areas.

• Compile a photo journal of ecology and geology observed in the field that demonstrates a basic understanding of how these sciences relate to environmental conditions of the field areas visited

• Students demonstrate basic knowledge of the ecologic characteristics, such as adaptive traits of flora and water chemistry of field areas.

• Students compile accurate geologic maps and cross-sections of field areas.

• Students compile a photo journal of ecology and geology observed in the field that demonstrates a basic understanding of how these sciences relate to environmental conditions of the field areas visited.

GEOL120 - Geology Field Studies in Owens Valley and the Sierra Nevada Mountains

• Students demonstrate the ability to use physical properties to identify minerals and rocks in the field.

• Students are able to identify major volcanic, glacial, and tectonic features in the field.

• Students will demonstrate basic understanding of the geologic processes, geologic structure, and geologic history of field areas.

• Students demonstrate the ability to make interpretations of geologic processes in the field.

GEOL201 - Earth History

• Describe the relative movement of Earth's tectonic plates at each of the three types of plate boundaries

• Use the physical properties of minerals and rocks to accurately identify specimens in lab and on exams

• Relate major geologic and biologic events to the appropriate eon, era, period, and epoch

• Utilize the fundamental principles of geology to determine the relative age of geologic events

• Apply radiometric dating principles to determine the absolute age of rock samples

• Identify common fossils

GEOL204 - The National Parks

• Describe the major geologic processes responsible for the national parks discussed during the semester

• Relate different plate tectonic settings to different national parks

• Identify specific geologic or topographic features on geologic and topographic maps

• Describe the three major rock groups and identify which groups prevail in a particular national park

GEOL207 - Paleontology, Life of the Past

• Students demonstrate the ability to identify common invertebrate fossils.

• Students demonstrate the ability to identify common vertebrate fossils.

• Students demonstrate the ability to utilize the fundamental principles of geology to determine the relative age of geologic events

• Students relate major geologic and biologic events to the appropriate eon, era, period, and epoch on the Geologic Time Scale.

• Students will be able to discuss the theory of evolution and the paleontological evidence in support of this theory.

• Relate major geologic and biologic events to the appropriate eon, era, period, and epoch

• Utilize the fundamental principles of geology to determine the relative age of geologic events

• Identify common vertebrate fossils

• Identify common invertebrate fossils

GEOL208 - The Age of the Dinosaurs

• Use the technique of scientific investigation to obtain information about dinosaurs

• Use uniformitarianism to determine the characteristics of ancient environments

• Demonstrate an understanding of how dinosaurs evolved over time

• Describe basic dinosaur behavior, physiology, and extinction patterns based on fossil evidence

• Demonstrate an understanding of significant geologic and biologic events in the history of life on Earth, including major extinctions and their causes

• Relate fossil remains presented at museums to topics discussed in class

GEOL209 - Natural Disasters

• Students understand the natural processes that are responsible for disasters.

• Students understand the geographic distribution of natural hazards.

• Students understand the impacts of disasters on society and public policy as well as the role of public education on such disasters.

• Students understand strategies to minimize damages from natural disasters.

- Students evaluate case studies about natural disasters.
- Students understand and identify natural hazards associated with Southern California.