GEOL G105: GENERAL GEOLOGY

Item	Value
Curriculum Committee Approval Date	10/04/2022
Top Code	191400 - Geology
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)
Local General Education (GE)	• GWC Physical Universe*** (GB1)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5A Physical Science (5A)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5A Physical Science (5A)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B1 Physical Science (B1)

Course Description

This course is an introduction to geology designed specifically for non-science majors. The Scientific Method is used to illustrate the discovery of natural physical processes on Earth. Content includes aspects of geology with emphasis on recent discoveries of plate tectonics and the movement of continents. Students will study topics such as important minerals, rock classification, mountain building and interior processes responsible for landscape development. This course will also cover historical topics such as the geologic time scale, the fossil record and evolution of life from marine organisms to land plants and animals. In addition, cover environmental geology, including the impacts humans have on Earth and how the Earth impacts humans through landslides, flash floods, volcanic eruptions, and earthquakes. Transfer Credit: CSU; UC: Credit Limitation: No credit for GEOL G105 if taken after GEOL G110. C-ID: GEOL 100. **C-ID:** GEOL 100.

Course Level Student Learning Outcome(s)

1. Course Outcomes
2. Employ the scientific method to explain major advances of life on Earth, outlining the evolution of the planet, lifeforms and physical aspects.
3. Explain the occurrence of matter and elements in nature with the formation of minerals and rocks.
4. Summarize recent discoveries in plate tectonics and the geologic processes resulting in land forms, mountain building, volcanoes and earthquakes consistent with this theory.
5. Report on the fundamentals of geologic time, including age dating, geologic time scale, sedimentary record and evolution of life forms.

Course Objectives

- 1. Explain how the scientific method is used to develop theories describing Earths evolution, processes and effect on the human population.
- 2. Identify the internal processes operating on Earth and correlate these processes with phenomena such as earthquakes, volcanism and plate tectonics.
- 3. Identify the ways in which geology is used in society and identify geologic hazards such as earthquakes, floods, landslides and volcanic eruptions.
- 4. Describe the origin and occurrence of the Earths valuable mineral and fossil fuel resources.

Lecture Content

Introduction to Earth Science, the scientific method: the study of minerals rocks and the geologic processes Understand geologic time and the evolution of the Earths geologic history Geologic Time Scale The fossil record and the evolution of life from marine life to land plants and animals Plate Tectonics the unifying theory Plate Tectonic Model and the driving forces responsible for plate movement Plate boundaries Transform Boundary (San Andreas Fault) Divergent Convergent/ subduction/continent to continent Atoms and elements the building blocks for minerals Mineral properties and mineral identification Economically important minerals Specific and special properties of minerals Rock forming minerals Rocks Igneous rocks Plutonic Volcanoes Sedimentary rocks Metamorphic rocks Economic Geology Mineral deposits Oil and gas Fossil fuels Surface processes River systems Groundwater and artesian flow Glaciations and glaciers Climate Change Erosion and deposition by glaciers Erosion by water and wind Deposition of sediments and land forms Earthquakes and geologic faults Landslides Internal Processes Convection and magma flow Plate movement Volcanic flows Internal process forming surficial structures Mountain building and tectonics Tension, compression and shear Tectonic events Landslides Major mountain ranges Ocean basins and the sea coast Waves and currents Coast types Erosion and deposition along the coast

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)

Reading Assignments

Textbook. Websites such as United States Geological Society (U.S.G.S) Earthquake index map. Current issues in Nature and Science publications.

Writing Assignments

Written individual reports from course textbook and provided websites.

Out-of-class Assignments

Internet assignments and a research outline.

Demonstration of Critical Thinking

Students must judge data and make decisions for themselves on the validity of concepts such as plate tectonics, Earth history, geologic dating and evaluation of the fossil record.

Required Writing, Problem Solving, Skills Demonstration

Written individual reports, poster presentations, group presentations of poster projects.

Eligible Disciplines

Earth science: Masters degree in geology, geophysics, earth sciences, meteorology, oceanography, or paleontology OR bachelors degree in geology AND masters degree in geography, physics, or geochemistry OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Wicander/Monroe. Earth: An Introduction to Physical Geology, 3rd ed. Cengage Learning, 2021 Rationale: -

Periodicals Resources

1. . Topics in geology and paleontology, Scientific American Volume 2022