

GEOL-110: PHYSICAL GEOLOGY

Effective Term

Fall 2019

BOT Approval

02/13/2019

SECTION A - Course Data Elements
CB04 Credit Status

Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Earth Science (Master's Degree)	

Subject Code

GEOL - Geology

Course Number

110

Department

Geology

Division

Science and Engineering (SE)

Full Course Title

Physical Geology

Short Title

Physical Geology

CB03 TOP Code

1914.00 - Geology

CB08 Basic Skills Status

NBS - Not Basic Skills

CB09 SAM Code

E - Non-Occupational

Rationale

Add TOP code and update example text.

SECTION B - Course Description
Catalog Course Description

Uses of geology in society; the nature of rocks and minerals; the dynamic nature of our planet is explored, including mountain building processes, volcanoes, faulting; plate tectonics; earthquakes; geologic time and surface land forming processes.

SECTION C - Conditions on Enrollment
Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade or Pass/No Pass

Allow Audit

Yes

Requisites**SECTION D - Course Standards****Is this course variable unit?**

No

Units

3.00

Lecture Hours

54.00

Outside of Class Hours

108

Total Contact Hours

54

Total Student Hours

162

Distance Education Approval**Is this course offered through Distance Education?**

Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent
Online with Proctored Exams	Permanent

SECTION E - Course Content**Student Learning Outcomes**

Upon satisfactory completion of the course, students will be able to:	
1.	The student will be able to identify geological materials and features of the earth.
2.	The student will be able to explain how geologic features are formed by geologic processes.
3.	The student will be able to identify and evaluate the impacts of geologic processes on society, with an emphasis on geologic natural hazards, land-use planning, and global climate.

Course Objectives

Upon satisfactory completion of the course, students will be able to:	
1.	Explain the scientific method.
2.	Demonstrate a conceptual understanding of fundamental concepts, principles, and interactions of Earth's systems applicable to the Geological Sciences.
3.	Apply understanding of the internal and external processes that shape and form the Earth.
4.	Demonstrate an understanding of the rock cycle and identify and describe the basic properties of rocks and minerals.
5.	Demonstrate an understanding of plate tectonics and Earth's resources.
6.	Demonstrate an understanding of how geological environments are formed, changed and eroded through geologic time.

7. Communicate complex course concepts effectively in writing and diagrams and apply critical thinking and problem-solving skills to make informed decisions in life.

Course Content

1. Introduction to Geology
 - a. The Scientific Method
 - b. History of Geology
2. Earth Materials
 - a. Minerals
 - b. Igneous, Sedimentary and Metamorphic Rocks
 - c. Soils
3. Geologic Time and Earth History
 - a. Geologic time
 - b. Relative and Absolute Dating
 - c. Fossils and Fossilization
4. Earth's Internal Forces
 - a. Plate Tectonics
 - b. Earthquakes
 - c. Vulcanism and Igneous Rocks
 - d. Mountain Building
 - e. Geological Structures
 - f. Metamorphism and Metamorphic Rocks
5. Earth's External Processes
 - a. Weathering, Mass Wasting and Erosion
 - b. Sediment and Sedimentary Rocks
 - c. Surface Water Processes
 - d. Groundwater Processes
 - e. Oceans and Coastal Processes
 - f. Desert Processes
 - g. Glacial Processes
6. Earth Resources
 - a. Renewable and Non-Renewable
 - b. Resources Metallogenic Provinces

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Field Trips	
Lecture	

Online Adaptation

Types	Examples of learning activities
Activity	
Directed Study	
Discussion	
Group Work	
Individualized Instruction	
Journal	
Lecture	

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
 Chat Rooms
 Discussion Boards
 E-mail Communication
 Telephone Conversations

Video or Teleconferencing

Student-Initiated Online Contact Types

Chat Rooms
Discussions
Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	Lecture Exams: Three plus a comprehensive Final Exam. Lecture examinations will consist of objective questions in a variety of formats including short answer, multiple choice and essay questions. Typical topics will include the Rock Cycle, the theory of Plate Tectonics and the age of the Earth.
Quizzes	Occasional lecture and lab quizzes: Quizzes are short examinations covering both lecture material and homework exercises.
Projects	Research assignments: These assignments include more in-depth study and presentation. A typical topic would be the earthquake history of southern California or the history and development of plate tectonic theory.
Other	One or more field trips will be assigned. Field trip location examples would be Pt. Reyes and Mt. Diablo.
Homework	These assignments include the solving of specific gravity problems and questions about Moh's scale of hardness.

Assignments

Reading Assignments

Reading Assignments: Selected readings from the required textbook and laboratory manual.

For example:

1. Read Chapter 3, Matter and Minerals, covering the origin of minerals and rocks on planet earth.
2. Read Exercise 3, Mineral Properties, and summarize the procedures for mineral testing.

Writing Assignments

Writing Assignments: Writing assignments will be graded on scientific accuracy, organization and correct use of English grammar and spelling.

For Example:

1. Earthquake problem set.
2. Flood Hazard problem set.

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

Tarback, E. J. and Lutgens, F. K.

Title

Earth

Edition/Version

11th

Publisher

Pearson

Year

2012

Material Type

Manual

Author

Tarbuck, E.J., Lutgens, F.K, Tasa, D.G.

Title

Earth: An Introduction to Physical Geology

Publisher

Pearson

Year

01-17-2016

SECTION G - Diversity, Equity and Inclusivity

Course Codes (Admin Only)

CB00 State ID

CCC000264354

CB10 Cooperative Work Experience Status

N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status

Y - Credit Course

CB13 Special Class Status

N - The Course is Not an Approved Special Class

CB23 Funding Agency Category

Y - Not Applicable (Funding Not Used)

CB24 Program Course Status

Program Applicable

Allow Pass/No Pass

Yes

Only Pass/No Pass

No