EART-110: EARTH SCIENCE

Effective Term
Fall 2026

CC Approval
12/05/2025

AS Approval
12/11/2025

BOT Approval
12/18/2025

COCI Approval
03/05/2026

SECTION A - Course Data Elements

CB04 Credit Status
Credit - Degree Applicable

Discipline

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

Subject Code
EART - Earth Science
Course Number
110

Department
Earth Science

Division
Science and Engineering (SE)

Full Course Title
Earth Science

Short Title
Earth Science

CB03 TOP Code
1930.00 - Earth Science

CIP Code
40.0601

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
E - Non-Occupational

Rationale
TOP Code change.

SECTION B - Course Description

Catalog Course Description
An introduction to the essentials of Earth Science with a laboratory. Topics include the geosphere, atmosphere, hydrosphere, and solar system. The focus is on the interactions between physical and chemical systems of the Earth such as the tectonic cycle, rock cycle, hydrologic cycle, weather and climate.

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
4.00000

Lecture Hours
54.00

Lab Hours
54.00

Outside of Class Hours
108

Total Contact Hours
108

Total Student Hours
216

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.	Identify geological material and features of the earth.
2.	Explain how geological features are formed by physical processes.
3.	Define, explain and describe elements and controls of weather and climate and their effect on humans.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Demonstrate a fundamental understanding of concepts, principles and interactions of Earth's systems including Hydrologic Cycle, Rock Cycle, Plate Tectonics Cycle, Solar System, Geologic Time, Weather and Climate.
2.	Be able to explain basic properties of minerals and rocks.
3.	Explain the processes that shape the Earth and how they change over geologic time.
4.	Explain the Scientific Method.
5.	Communicate complex course concepts effectively in writing and diagrams.
6.	Explain geologic time through evidence of fossils, minerals, and rocks.
7.	Understand Earth's External Processes: landscape formation and features as a result of water, wind, glaciers.
8.	Understand Earth's internal processes: plate tectonics, geologic structures, mountain building, earthquakes and volcanoes.
9.	Explain oceanographic processes and the influence on the Earth's surface.
10.	Explain the major effect the atmosphere has on Earth processes and why it is a large part of Earth's radiation protection.
11.	Explain how basic astronomical relationships within the solar system affects the Earth.

Course Content

1. Studying Earth Science
   a. What is Earth Science
   b. Introduction to the Scientific Method
2. Earth's Internal Forces
   a. Plate Tectonics
   b. Geologic Structures
   c. Mountain Building
   d. Earthquakes
   e. Volcanoes
3. Earth's Materials
   a. Minerals
   b. Igneous, Sedimentary and Metamorphic Rocks
   c. Soils
4. Earth History
   a. Geologic Time
   b. Relative and Absolute dating
   c. Fossils and Fossilization
5. Earth's External Processes
   a. Surface Water and Groundwater
   b. Glaciers
   c. Deserts
6. Oceanography
   a. Ocean Currents
   b. Tides
   c. Shorelines
7. Atmosphere
   a. Composition of the Atmosphere
   b. Seasons
   c. Atmospheric Moisture

   d. Weather Patterns and Severe Weather
   e. Climate
8. Astronomy
   a. The Solar System
   b. Stars and Stellar Evolution
   c. Interstellar Matter
   d. Formation of the Universe
9. Laboratory Activities
   a. The Scientific Method
   b. Plate Tectonics, Earthquakes and Volcanoes
   c. Faults and Folds
   d. Mineral Properties and Identification
   e. Rock Properties and Identification
   f. Groundwater and Subsidence
   g. Surface Properties
   h. Astronomy
   i. Relative and Absolute Dating and Geologic Time
   j. Oceans
   k. Fossil Properties and Identification
   l. Weather Systems and Atmospheric Moisture
   m. Field Trips

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Field Trips	Field trips to local museums and geologic features.
Lab	Demonstrations and assigned student activities.
Lecture	Lecture covering assigned chapters.

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	Final Exam
Quizzes	
Projects	Research
Other	Field Trips
Homework	
Lab Activities	

Other	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. Lab Exams: There will be 3 Lab Practical Exams. Lab Practical Exams involve identifying rocks and minerals and the demonstration of basic laboratory methods. Occasional lecture and lab quizzes: Quizzes are short examinations covering both lecture material and current laboratory exercises. Formal written lab reports: Students will keep an organized lab notebook of their observations of the exercises performed in the laboratory. One or more field trips will be assigned. Field trip location examples would be Pt. Reyes and Mt. Diablo. Homework Assignments: These assignments include the solving of specific gravity problems and questions about Mohs scale of hardness. Research Project: These are semester long projects and include such topics as the history of earthquakes in southern California or the origin of volcanism in the central Sierra.

Assignments

Reading Assignments

Weekly reading of text chapters assigned in lecture and weekly reading of lab exercises in the lab manual. Students are also directed to specific internet sites to review the most recent occurrences of earth science related news events.

Examples of internet sites include: the United States Geological Society and the Geological Society of America. Current events in the earth sciences never fail to stimulate critical thinking and scientific analysis.

Writing Assignments

Weekly analysis and assessment of lab exercises is done for each class. This includes math calculations, statistical analysis and topographic map interpretation. The finished reports would analyze stream deposits and compare and contrast the topographic expressions of different classes of volcanoes.

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

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

Title

Earth Science

Edition/Version

14th

Publisher

Pearson

Year

2014

Material Type

Manual

Author

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

Title

Applications and Investigations in Earth Science

Publisher
Pearson

Year
03-01-2014

SECTION G - Diversity, Equity and Inclusivity

How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?
Needs DEI Statement.

Course Codes (Admin Only)

CB00 State ID
CCC000250821

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