

GEOL R114: HISTORICAL GEOLOGY

Originator

toneil

College

Oxnard College

Discipline (CB01A)

GEOL - Geology

Course Number (CB01B)

R114

Course Title (CB02)

Historical Geology

Banner/Short Title

Historical Geology

Credit Type

Credit

Start Term

Fall 2021

Catalog Course Description

This course is an introduction to the history of the earth and its evolution including the surface environments, atmosphere, oceans, and life. Relationships among rocks and fossils are studied to reconstruct the geological and biological evolution of the earth for the last four-and-one-half-billion years. C-ID: GEOL 110.

Taxonomy of Programs (TOP) Code (CB03)

1930.00 - Earth Science

Course Credit Status (CB04)

D (Credit - Degree Applicable)

Course Transfer Status (CB05) (select one only)

A (Transferable to both UC and CSU)

Course Basic Skills Status (CB08)

N - The Course is Not a Basic Skills Course

SAM Priority Code (CB09)

E - Non-Occupational

Course Cooperative Work Experience Education Status (CB10)

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

Course Classification Status (CB11)

Y - Credit Course

Educational Assistance Class Instruction (Approved Special Class) (CB13)

N - The Course is Not an Approved Special Class

Course Prior to Transfer Level (CB21)

Y - Not Applicable

Course Noncredit Category (CB22)

Y - Credit Course

Funding Agency Category (CB23)

Y - Not Applicable (Funding Not Used)

Course Program Status (CB24)

1 - Program Applicable

General Education Status (CB25)

Y - Not Applicable

Support Course Status (CB26)

N - Course is not a support course

Field trips

May be required

Faculty notes on field trips; include possible destinations or other pertinent information

Santa Monica Mountains. Channel Islands

Grading method

Letter Graded

Does this course require an instructional materials fee?

No

Repeatable for Credit

No

Is this course part of a family?

No

Units and Hours

Carnegie Unit Override

No

In-Class

Lecture

Minimum Contact/In-Class Lecture Hours

52.5

Maximum Contact/In-Class Lecture Hours

52.5

Activity

Laboratory

Total in-Class

Total in-Class

Total Minimum Contact/In-Class Hours

52.5

Total Maximum Contact/In-Class Hours

52.5

Outside-of-Class

Internship/Cooperative Work Experience

Paid

Unpaid

Total Outside-of-Class

Total Outside-of-Class

Minimum Outside-of-Class Hours

105

Maximum Outside-of-Class Hours

105

Total Student Learning

Total Student Learning

Total Minimum Student Learning Hours

157.5

Total Maximum Student Learning Hours

157.5

Minimum Units (CB07)

3

Maximum Units (CB06)

3

Student Learning Outcomes (CSLOs)

Upon satisfactory completion of the course, students will be able to:	
1	Apply the scientific method to evaluate the Earth's history; analyze and evaluate the theories for Earth's origin; explain the concept of geologic time and the observations that support this concept
2	Explain the geologic basis of organic evolution and describe fossils and their importance in supporting the theories of evolution
3	Apply plate tectonics theory to formulate past, present, and future changes on Earth

Course Objectives

Upon satisfactory completion of the course, students will be able to:	
1	Demonstrate a fundamental understanding of concepts and principles of Historical Geology including Fossilization Ecology, Evolution and Extinction, Plate Tectonics, Geologic Time and Dating Methods, the Supercontinent Cycle and Paleo-Climate
2	Explain formation of and basic properties of fossils, minerals and rocks
3	Explain the tectonic processes that shape the Earth over geologic time
4	Interpret sequences of geologic events

Course Content

Lecture/Course Content

1. Plate Tectonics
 - a. Formation and Origin of the Earth
 - b. Driving Mechanisms
 - c. Plate Boundaries
 - d. Hot Spots
 - e. Crustal Evolution and Deformation
 - f. Supercontinent Cycle
2. Earth's Materials
 - a. Minerals
 - b. Igneous, Sedimentary and Metamorphic Rocks
 - c. Rock Cycle
3. Fossils

- a. Modes of Formation
- b. Classification
- c. Ecology, Evolution and Extinction
- 4. Dating Methods
 - a. Geologic Time
 - b. Relative Dating
 - c. Absolute Dating
- 5. Stratigraphy
 - a. Catastrophism and Uniformitarianism
 - b. Interpretation of sedimentary rock sequences
- 6. Paleogeography
 - a. Archaean, Proterozoic and Ediacaran geologic and tectonic events
 - b. Paleozoic geologic and tectonic events
 - c. Mesozoic geologic and tectonic events
 - d. Cenozoic geologic and tectonic events
 - e. Recent geologic and tectonic events

Laboratory or Activity Content

None

Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

Problem solving exercises
Written expression

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):

Essay exams
Essays
Group projects
Individual projects
Objective exams
Oral presentations
Problem-Solving Assignments
Problem-solving exams
Quizzes
Reports/papers
Research papers

Instructional Methodology

Specify the methods of instruction that may be employed in this course

Audio-visual presentations
Computer-aided presentations
Collaborative group work
Class activities
Class discussions
Distance Education
Demonstrations
Field trips
Group discussions
Guest speakers
Instructor-guided interpretation and analysis
Internet research
Lecture
Small group activities

Describe specific examples of the methods the instructor will use:

1. Hands on demonstration and illustration of the rock cycle. Student groups are given samples of rocks and asked to identify where they fit in the rock cycle.
2. In class viewing of PowerPoint, videos, and Google Earth to analyze the history of geologic events such as earthquakes, mountain building, and tectonic plate movements.

3. Instructor led discussions of significant geologic events that affected Southern California, such as the subduction of the Farallon Plate.

Representative Course Assignments

Writing Assignments

1. Write a short essay describing how a rise in sea level would be recorded in the geologic record.
2. Summarize the pertinent information from videos on key areas of study.
3. Essay assignment such as describing the meandering in the Santa Clara River through time.
4. Assigned exercises (e.g., formation of the Sierra Nevada Mountains, origin of the Cascade Mountain chain) are to be completed by students outside of class and turned in for evaluation and grading.

Critical Thinking Assignments

Propose different explanations for the change in direction of the emperor Seamount Chain.

1. Consider the Theory of Plate Tectonics and how it has affected the formation of the strata in Southern California.

Reading Assignments

1. Read this article about everything you ever wanted to know about dinosaurs. http://paleobiology.si.edu/dinosaurs/info/everything/evo_1.html
2. Each chapter of text studied in class is to be read by students prior to the corresponding lecture. For example, the chapter about earthquakes will be read by students prior to the earthquake lectures.
3. Students may be assigned reading of selected articles on physical geology topics using journals/periodicals such as Scientific American, Nature, and National Geographic.

Other assignments (if applicable)

1. Visit the Santa Monica Mountains, observe the the different rock types, and geologic structures. Write a paper on selected areas.
2. Join a group for a field activity that examines the natural landscape in the local mountains. Recognize the different geologic processes or principles impacting the area throughout time.

Outside Assignments

Representative Outside Assignments

1. Write notes in the workbook from provided information or textbook to prepare for exams.
2. Answer essay questions describing earth's systems.
3. Write a summary of instructor-made videos and other video resources.
4. Participate in on-line discussion boards on course material and present relevant questions and answers.
5. Use on-line learning tools and practice quizzes to prepare for exam.
6. Visit a local area and interpret natural phenomena discussed in class.
7. Join a group for a field activity that examines the natural landscape in the local mountains. Recognize the different geologic processes or principles impacting the area throughout time.

Articulation

C-ID Descriptor Number

GEOL 110

Status

Approved

District General Education

A. Natural Sciences

B. Social and Behavioral Sciences

C. Humanities

D. Language and Rationality

E. Health and Physical Education/Kinesiology

F. Ethnic Studies/Gender Studies

CSU GE-Breadth

Area A: English Language Communication and Critical Thinking

Area B: Scientific Inquiry and Quantitative Reasoning

Area C: Arts and Humanities

Area D: Social Sciences

Area E: Lifelong Learning and Self-Development

CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

IGETC

Area 1: English Communication

Area 2A: Mathematical Concepts & Quantitative Reasoning

Area 3: Arts and Humanities

Area 4: Social and Behavioral Sciences

Area 5: Physical and Biological Sciences

Area 6: Languages Other than English (LOTE)

Textbooks and Lab Manuals

Resource Type

Textbook

Description

Stanley, S & Luczaj, J. *Earth System History* (4). W. H. Freeman. New York, (2015) 1429255269

Resource Type

Other Instructional Materials

Description

Fossil collections.

Resource Type

Other Instructional Materials

Description

Rock and mineral collections.

Resource Type

Other Instructional Materials

Description

Geologic maps.

Resource Type

Textbook

Classic Textbook

No

Description

Bentley C. et al., Historical Geology, Open Geology. org, 2020

Library Resources**Sufficient Library Resources exist**

Yes

Distance Education Addendum**Definitions****Distance Education Modalities**

Hybrid (51%–99% online)

Hybrid (1%–50% online)

100% online

Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

Regular Effective/Substantive Contact**Hybrid (1%–50% online) Modality:**

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards encourages various types of interaction and critical thinking skills among all course participants. Questions and topics posed will allow students to discuss, compare and contrast, identify, and analyze elements of the course outcomes. Other discussion boards may be used for Q&A and general class discussion by students and instructor to facilitate student success and strengthen student learning outcomes.

E-mail	E-mail, class announcements and various learning management system tools will be used to regularly communicate with all students on matters such as clarification of class content, reminders of upcoming assignments and/or course responsibilities, to provide prompt feedback to students on coursework to facilitate student learning outcomes, or to increase the role of an individual educator in the academic lives of a student. Students will be given multiple ways to email instructor through both the learning management system inbox and faculty provided email accounts.
Synchronous Dialog (e.g., online chat)	Instructor may provide a set time each week where s/he will be available for synchronous chat and be available in the discussion board and can answer questions in live time.
Video Conferencing	Video tools such as ConferZoom can be used to provide live synchronous or asynchronous sessions with students. ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Video Conferences will be used to facilitate SLOs and student-to-student group meetings will also be encouraged.
Face to Face (by student request; cannot be required)	Students will have direct face-to-face contact with instructor during weekly class meetings. This time will provide the opportunity for students to discuss and ask questions about the material to facilitate student learning objectives and course outcomes. The instructor will also hold weekly, scheduled office hours for students to be able to meet and discuss course materials or individual progress. Students can request additional in-person or web conferencing meetings with faculty member as needed. Faculty may encourage online students to form “study groups” in person or online.

Hybrid (51%–99% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards encourages various types of interaction and critical thinking skills among all course participants. Questions and topics posed will allow students to discuss, compare and contrast, identify, and analyze elements of the course outcomes. Other discussion boards may be used for Q&A and general class discussion by students and instructor to facilitate student success and strengthen student learning outcomes.
E-mail	E-mail, class announcements and various learning management system tools will be used to regularly communicate with all students on matters such as clarification of class content, reminders of upcoming assignments and/or course responsibilities, to provide prompt feedback to students on coursework to facilitate student learning outcomes, or to increase the role of an individual educator in the academic lives of a student. Students will be given multiple ways to email instructor through both the learning management system inbox and faculty provided email accounts.
Synchronous Dialog (e.g., online chat)	Instructor may provide a set time each week where s/he will be available for synchronous chat and be available in the discussion board and can answer questions in live time.
Video Conferencing	Video tools such as ConferZoom can be used to provide live synchronous or asynchronous sessions with students. ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Video Conferences will be used to facilitate SLOs and student-to-student group meetings will also be encouraged.
Face to Face (by student request; cannot be required)	Students will have direct face-to-face contact with instructor during weekly class meetings. This time will provide the opportunity for students to discuss and ask questions about the material to facilitate student learning objectives and course outcomes. The instructor will also hold weekly, scheduled office hours for students to be able to meet and discuss course materials or individual progress. Students can request additional in-person or web conferencing meetings with faculty member as needed. Faculty may encourage online students to form “study groups” in person or online.

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards encourages various types of interaction and critical thinking skills among all course participants. Questions and topics posed will allow students to discuss, compare and contrast, identify, and analyze elements of the course outcomes. Other discussion boards may be used for Q&A and general class discussion by students and instructor to facilitate student success and strengthen student learning outcomes.
E-mail	E-mail, class announcements and various learning management system tools will be used to regularly communicate with all students on matters such as clarification of class content, reminders of upcoming assignments and/or course responsibilities, to provide prompt feedback to students on coursework to facilitate student learning outcomes, or to increase the role of an individual educator in the academic lives of a student. Students will be given multiple ways to email instructor through both the learning management system inbox and faculty provided email accounts.
Synchronous Dialog (e.g., online chat)	Instructor will provide a set time each week where s/he will be available for synchronous chat and question and answers with students.
Video Conferencing	Video tools such as ConferZoom can be used to provide live synchronous or asynchronous sessions with students. ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Video Conferences will be used to facilitate SLOs and student-to-student group meetings will also be encouraged.
Face to Face (by student request; cannot be required)	The instructor will hold weekly, scheduled office hours either in person or via-web conferencing, for students to be able to meet and discuss course materials or individual progress. Students can request additional in-person or web conferencing meetings with faculty member as needed. Faculty may encourage online students to form "study groups" in person or online.
Telephone	Students can request for instructor to call or vice versa in order to answer one-on-one questions about course material or student progress.
Other DE (e.g., recorded lectures)	Faculty will use a variety of ADA compliant tools and media integrated within the learning management system to help students reach SLO competency. Tools may include: <ul style="list-style-type: none"> o Recorded Lectures, Narrated Slides, Screencasts o Instructor created content o OC Online Library Resources o Canvas Peer Review Tool o Canvas Student Groups (Assignments, Discussions) o 3rd Party (Publisher) Tools (MyOpenMath) o Websites and Blogs o Multimedia (YouTube, Films on Demand, 3CMedia, Khan Academy, etc.)

Examinations**Hybrid (1%–50% online) Modality**

Online
On campus

Hybrid (51%–99% online) Modality

Online
On campus

Primary Minimum Qualification

EARTH SCIENCE

Review and Approval Dates**Department Chair**

09/02/2020

Dean

09/02/2020

Technical Review

09/23/2020

Curriculum Committee

09/23/2020

Curriculum Committee

10/28/2020

CCCCO

MM/DD/YYYY

Control Number

CCC000579737

DOE/accreditation approval date

MM/DD/YYYY