GEOL R114L: HISTORICAL GEOLOGY LABORATORY

Originator
toneil

College
Oxnard College

Discipline (CB01A)
GEOL - Geology

Course Number (CB01B)
R114L

Course Title (CB02)
Historical Geology Laboratory

Banner/Short Title
Historical Geology Lab

Credit Type
Credit

Start Term
Fall 2021

Catalog Course Description
This course provides hands-on experience identifying fossils, minerals, and rocks. The course introduces geologic time, relative age relations in rocks, construction of paleogeographic maps, interpretation of geologic maps and cross sections, and fossil evidence of evolutionary trends throughout geologic time. C-ID: GEOL 110L.

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
Mountains of Southern California

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

Activity

Laboratory
Minimum Contact/In-Class Laboratory Hours
52.5
Maximum Contact/In-Class Laboratory Hours
52.5

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

Total Student Learning

Total Student Learning
Total Minimum Student Learning Hours
52.5
Total Maximum Student Learning Hours
52.5

Minimum Units (CB07)
1
Maximum Units (CB06)
1

Prerequisites
GEOL R114 or concurrent enrollment

Entrance Skills

Entrance Skills
Ability to apply the concepts and principles of Historical Geology

Prerequisite Course Objectives
GEOL R114-Demonstrate a fundamental understanding of concepts and principles of Historical Geology including:FossilizationEcology, Evolution and ExtinctionPlate TectonicsGeologic Time and Dating MethodsThe Supercontinent Cycle and Paleo-Climate

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Entrance Skills
Ability to determine the basic properties of fossils

Prerequisite Course Objectives
GEOL R114-Explain formation of and basic properties of fossils, minerals and rocks

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Entrance Skills
Ability to interpret a basic sequence of geologic events

Prerequisite Course Objectives
GEOL R114-Demonstrate a fundamental understanding of concepts and principles of Historical Geology including:FossilizationEcology, Evolution and ExtinctionPlate TectonicsGeologic Time and Dating MethodsThe Supercontinent Cycle and Paleo-Climate
GEOL R114-Explain the tectonic processes that shape the Earth over geologic time
GEOL R114-Interpret sequences of geologic events

Requisite Justification

Requisite Type
Concurrent

Requisite
Geology 114

Requisite Description
Course in a sequence

Level of Scrutiny/Justification
Closely related lecture/laboratory course

Requisite Type
Prerequisite

Requisite
Geology 114

Requisite Description
Course in a sequence

Level of Scrutiny/Justification
Closely related lecture/laboratory course

Student Learning Outcomes (CSLOs)

	Upon satisfactory completion of the course, students will be able to:
1	Apply general math skills such as unit conversion, ratios, and percentages to solving simple rate problems; evaluate data, produce and interpret tables and graphs; apply the metric system of measurement
2	Acquire knowledge and skills sufficient to allow one to pursue advanced study in earth science or find employment in earth science related fields
3	Name common fossils
4	Interpret a geologic cross section
5	Apply the scientific method to solve earth science problems such as determining the age of the Earth

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1	Apply the principles of the scientific method
2	Apply concepts and principles of Historical Geology including: Fossilization, Ecology, Evolution, Extinction, and the Fossil Record, Plate Tectonics, Geologic Time and Dating Methods, the Supercontinent cycle and Paleoclimates
3	Identify representative physical samples of fossils and rocks
4	Apply knowledge of tectonic processes to interpret geologic events
5	Interpret geologic maps, cross-sections, and stratigraphic columns
6	Apply principles of geologic dating to interpret sequences of geologic events
7	Communicate complex course concepts effectively in writing and diagrams

Course Content

Lecture/Course Content
NONE

Laboratory or Activity Content

1. Basic Introduction to identifying rocks and minerals
2. Identify major groups of fossil organisms
3. Examine modes of fossil preservation
4. Constructing and interpreting cladograms
5. Interpret geologic maps
6. Interpret geologic cross sections
7. Interpret stratigraphic columns
8. Relative dating and interpreting sequences of geologic events
9. Introduction to absolute dating

10. Paleogeographic reconstruction
11. Field Trips

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
Skills demonstrations
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
Laboratory activities
Laboratory reports
Objective exams
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
Instructor-guided use of technology
Internet research
Laboratory activities
Lecture
Small group activities

Describe specific examples of the methods the instructor will use:

1. Students will complete lab exercises during the lab period such as interpretation of geologic maps.
2. Students will be evaluated for problem solving in lab activities such as fossil correlation.
3. Written and interpretive exercises will draw from laboratory activities involving plate tectonics.
4. Field trip reports will be used following the scientific method to interpret rock sequences near Point Mugu.

Representative Course Assignments

Writing Assignments

1. Assigned exercises are to be completed by students in class, and turned in for evaluation and grading.
2. Describe the plate tectonic processes and plate boundaries, and interpret provided data on seafloor spreading, including the rate of annual movement.
3. Completion of full lab experiment following the steps in the scientific method. Experiments will correlate fossil types.

Critical Thinking Assignments

1. Participate in class and small group discussions to explain laboratory results such as density variations in rocks and how it applies to plate tectonics.

2. Analyze and explain the physical and chemical processes explained in lecture and apply them to situations in plate tectonics.
3. Critique experimental lab setup of equipment and processes to ascertain why lab results may differ among different students.

Reading Assignments

1. Selected readings from historical geology lab manual.
2. Selected readings from periodicals and magazines such as *Scientific American.*

Skills Demonstrations

1. Students will interpret geologic maps and develop an analysis of the geologic history of an area.
2. Students will demonstrate competency in lab equipment setup.
3. Students will demonstrate how to read results from lab instruments such as a goniaometer.

Other assignments (if applicable)

None

Outside Assignments

Articulation

C-ID Descriptor Number

GEOL 110L

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
Brice, J. & Levin, H. *Laboratory Studies in Earth History* (8th). McGraw Hill. New York, (2016)

Resource Type
Other Instructional Materials

Description
Fossil collections and sets.

Resource Type
Other Instructional Materials

Description
Maps.

Resource Type
Other Instructional Materials

Description
Rock and mineral sets.

Resource Type
Other Instructional Materials

Description
PowerPoint presentations

Resource Type
Other Instructional Materials

Description
Video Presentations

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. Students will be required to respond to one another with substantive comments with the intent of creating a dialog. 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 such as “Message Students Who” and “Assignment Comments”, 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.
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.
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: • Recorded Lectures, Narrated Slides, Screencasts • Instructor created content • OC Online Library Resources • Canvas Peer Review Tool • Canvas Student Groups (Assignments, Discussions) • 3rd Party (Publisher) Tools (MyOpenMath) • Websites and Blogs • Multimedia (YouTube, Films on Demand, 3CMedia, Khan Academy, etc.)
Synchronous Dialog (e.g., online chat)	Instructor will provide a set time each week where they 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. Recordings of all live sessions will be made available within the LMS. Video Conferences will be used to facilitate SLOs and student-to-student group meetings will also be encouraged.
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.

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. Students will be required to respond to one another with substantive comments with the intent of creating a dialog. 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.
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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.

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular Asynchronous discussion boards will be used to encourage discussion among students where they can compare and contrast/ discuss /identify and analyze elements of course outcomes. Other Discussion boards will also be used for Q&A and general class discussion by students and instructor to facilitate student learning outcomes. E.g. - Students will use the discussion board in Canvas to discuss plate tectonics affects California.

E-mail	Email, class announcements and tools such as “Message Students Who” and “Assignment Comments” in Canvas will be used to regularly communicate with all students to clarify class content, remind of upcoming assignments, and provide immediate feedback to students on coursework to facilitate student learning outcomes. Students will be given multiple ways to email instructor through Canvas inbox and faculty provided email account through their own canvas email and school email.
Other DE (e.g., recorded lectures)	Faculty will use a variety of tools and media integrated within the LMS to help students reach SLO such as: o Recorded Lectures, Narrated Slides, Screencasts o Instructor created content o Canvas Peer Review Tool o Canvas Student Groups (Assignments, Discussions) o 3rd Party (Publisher) Tools (Mastering Geology) o Websites and Blogs o Multimedia (YouTube, Films on Demand, 3CMedia, Google Earth, Earth.nullschool, etc.)
Synchronous Dialog (e.g., online chat)	Scheduled synchronous sessions may be organized at the instructor’s discretion to review topics from the reading, asynchrous lectures, and other assigned material. This time may also be used have class or group discussions. Video conferencing software (such as Zoom) my be used for this purpose.

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

DTRW-I
MM/DD/YYYY

Curriculum Committee
10/28/2020

Board
MM/DD/YYYY

CCCCO
MM/DD/YYYY

Control Number
CCC000582847

DOE/accreditation approval date
MM/DD/YYYY