GEOL R101L: PHYSICAL GEOLOGY LABORATORY

Originator

toneil

College Oxnard College

Discipline (CB01A) GEOL - Geology

Course Number (CB01B) R101L

Course Title (CB02) Physical Geology Laboratory

Banner/Short Title Physical Geology Lab

Credit Type Credit

Start Term Fall 2021

Catalog Course Description

This course is the laboratory to accompany GEOL R101. Topics include identification and interpretation of geologic features, interpretation of topographic maps and aerial photographs, identification of rocks and minerals. C-ID: GEOL 100L.

Taxonomy of Programs (TOP) Code (CB03)

1914.00 - Geology

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, beaches, and river bottoms in Ventura County

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)

Maximum Units (CB06)

Prerequisites GEOL R101 or concurrent

Entrance Skills

Entrance Skills

Ability to apply geologic concepts such as Law of Stratigraphic Succession

Prerequisite Course Objectives

GEOL R101-Demonstrate an understanding of the internal and external processes that shape and form the Earth. GEOL R101-Demonstrate an understanding of the rock cycle and identify and describe the basic properties of rocks and minerals. GEOL R101-Explain the scientific method.

GEOL R101-Demonstrate an understanding of how geological environments are formed, changed, and eroded through geological time.

Entrance Skills

Ability to read and understand geologic patterns on a geologic map.

Prerequisite Course Objectives

GEOL R101-Demonstrate the common methods used by geologists to study the Earth such as seismography, petrography, and radiometric age dating.

GEOL R101-Demonstrate a conceptual understanding of the fundamental concepts, principles, and interactions of the Earth's systems that are applicable to the Geological Sciences.

GEOL R101-Demonstrate an understanding of how geological environments are formed, changed, and eroded through geological time.

Entrance Skills

Ability to apply the scientific method in lab reports.

Prerequisite Course Objectives

GEOL R101-Explain the scientific method. GEOL R101-Demonstrate a conceptual understanding of the fundamental concepts, principles, and interactions of the Earth's systems that are applicable to the Geological Sciences.

Entrance Skills

Ability to apply physical processes to interpret laboratory results and obsercvvations

Prerequisite Course Objectives

GEOL R101-Demonstrate an understanding of the internal and external processes that shape and form the Earth. GEOL R101-Explain the scientific method.

GEOL R101-Demonstrate a conceptual understanding of the fundamental concepts, principles, and interactions of the Earth's systems that are applicable to the Geological Sciences.

Requisite Justification

Requisite Type Prerequisite

Requisite Geology R 101

Requisite Description Course in a sequence

Level of Scrutiny/Justification Closely related lecture/laboratory course

Requisite Type Concurrent

Requisite Geology 101

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	Identify the common major minerals		
2	Identify the common rocks of the earth's crust.		
3	Calculate the rate of seafloor spreading using data provided.		
Course Objectives			
	Upon satisfactory completion of the course, students will be able to:		
1	Recognize the importance in developing and applying basic concepts in physical geology by becoming familiar with the interpretation of topographic maps and aerial photographs.		
2	Apply basic techniques of field studies within the discipline of physical geology.		
3	Demonstrate an 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 common rocks and minerals found at or near the Earth's surface.		
5	Describe the common methods used by geologists to study the Earth such as seismography, petrography, and radiometric age dating.		
6	Explain the scientific method.		
7	Demonstrate a conceptual understanding of the fundamental concepts, principles, and interactions fo the Earth's systems that are applicable to the Geological Sciences		
8	Demonstrate an understanding of plate tectonics and the Earth's resources.		
9	Demonstrate an understanding of how geological environments are formed, changed, and eroded through geologic time.		

Course Content

Lecture/Course Content

NONE

Laboratory or Activity Content

- 1. Analysis and interpretation of topographic maps and aerial photographs, such as an aerial photograph of a tombolo.
- 2. Identification of common minerals, such as quartz.
- 3. Evaluation of sediment types and the environmental controls that determine formation of sediments, such as a bauxite soil.
- 4. Evaluation of the plate tectonic model and identification of plate tectonic features, such as a trench.
- 5. Evaluation of the rock cycle model and identification of common sedimentary, metamorphic, and igneous rock; such as granite, sandstone, and schist.
- 6. Evaluation of volcanic hazards, such as glowing avalanches.
- 7. Evaluation of methods of dating rocks, fossils, and geologic events, such as radiometric age dating.
- 8. Interpretation of geological structures and block diagrams.
- 9. Recognition of and interpretation of glacial processes and landforms, such as moraines.
- 10. Evaluation of groundwater processes, resources, and risks, such as pollution.
- 11. Recognition of and interpretation of glacial processes and landforms, such as moraines.
- 12. Recognition of and interpretation of desert landforms, such as playas.
- 13. Recognition of and interpretation of coastal processes, such as spits.
- 14. Evaluation of the hazards and risks associated with coastal processes, such as beach erosion.
- 15. Recognition of and interpretation of earthquake features such as scarps and evaluating the hazards and human risks of earthquakes.

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 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 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 topographic maps.
- 2. Students will be evaluated for problem solving in lab activities such as igneous rock formation.
- 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 natural phenomena such as the erosion at Hueneme Beach.

Representative Course Assignments

Writing Assignments

- 1. Assigned exercises are to be completed by students in class, 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 measure the densities of various rocks.

Critical Thinking Assignments

- 1. Participate in class an 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 physical geology text, such as the section on rocks.
- 2. Selected readings from periodicals and magazines such as Scientific American.

Skills Demonstrations

- 1. Students will interpret topographic maps and develop an analysis of the landscape.
- 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 100L

Status Approved

Comparable Courses within the VCCCD

GEOL V02L - Physical Geology Laboratory

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 Other Instructional Materials

Description Use of the Internet.

Resource Type Other Instructional Materials

Description Class set of raised relief maps.

Resource Type Other Instructional Materials

Description

Mineral and rock samples.

Resource Type

Other Instructional Materials

Description

PowerPoint presentations.

Resource Type

Other Instructional Materials

Description

Video presentations.

Resource Type Other Instructional Materials

Description

Slide presentations, such as a presentation on rocks.

Resource Type Other Instructional Materials

Description

Wall maps, such as a map of the world.

Resource Type

Manual

Description

Deline, Harris, Tefend. *Laboratory Manual For Introductory Geology*. Gainesville. University Press. (2019) Busch, Richard M. *Laboratory Manual in Physical Geology* (10th). Upper Saddle River. Pearson Prentice Hall. (2015)

Resource Type

Manual

Description ONeil, Thomas (2020). Physical Geology Laboratory Manual. Oxnard College, Xanedu. Oxnard

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	Other handles a second state of the structure shall be a size of the second state.
Telephone	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.
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.

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 CCC000298641

DOE/accreditation approval date MM/DD/YYYY