

MST R103L: INTRODUCTION TO OCEANOGRAPHY LABORATORY

Originator

toneil

College

Oxnard College

Discipline (CB01A)

MST - Marine Studies

Course Number (CB01B)

R103L

Course Title (CB02)

Introduction to Oceanography Laboratory

Banner/Short Title

Intro to Oceanography Lab

Credit Type

Credit

Start Term

Fall 2021

Co-listed (Same-as) Course(s)

GEOL R103L

Taxonomy of Programs (TOP) Code (CB03)

1930.00 - Earth Science

SAM Priority Code (CB09)

E - Non-Occupational

Control Number

CCC000219433

Primary Minimum Qualification

EARTH SCIENCE

Department

Geology (2185)

Division

Oxnard Math/Science/HED/Athletics/PE

Catalog Course Description

This course is the laboratory to accompany GEOL R103. Topics include introduction to ocean/atmosphere relationships, interpretation of bathymetric maps, applied methods of measurement, and descriptive analysis of the physical ocean, including beaches, ocean currents, waves, and water properties.

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

Local beaches and harbors, and the 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

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 R103 or MST R103 or concurrent enrollment

Entrance Skills

Entrance Skills

Ability to describe the ocean basins

Prerequisite Course Objectives

GEOL R103-Describe the common methods of marine exploration

GEOL R103-Describe the bathymetry of the ocean basins

GEOL R103-Explain the scientific method
 MST R103-Describe the common methods of marine exploration
 MST R103-Describe the bathymetry of the ocean basins
 MST R103-Explain the scientific method

Entrance Skills

Ability to describe the features of a shoreline

Prerequisite Course Objectives

GEOL R103-Describe the major features of the local coastline
 MST R103-Describe the major features of the local coastline

Entrance Skills

Ability to describe the basic chemistry of the oceans

Prerequisite Course Objectives

GEOL R103-Describe the common methods of marine exploration
 GEOL R103-Explain the scientific method
 GEOL R103-Demonstrate a conceptual understanding of the fundamental concepts, principles, and interactions of the World Ocean's systems that are applicable to the Physical Oceanographic Sciences
 MST R103-Explain the fundamental physical and chemical processes that operate in the oceans
 MST R103-Describe the common methods of marine exploration
 MST R103-Explain the scientific method
 MST R103-Demonstrate a conceptual understanding of the fundamental concepts, principles, and interactions of the World Ocean's systems that are applicable to the Physical Oceanographic Sciences

Requisite Justification

Requisite Type

Prerequisite

Requisite

GEOL R103 OR MST R103

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Closely related lecture/laboratory course

Requisite Type

Concurrent

Requisite

GEOL R103 or MST R103

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 Draw a bathymetric profile.
- 3 Investigate questions using the scientific method and report results.

Course Objectives

Upon satisfactory completion of the course, students will be able to:

- 1 Recognize the importance of developing and applying basic concepts in physical oceanography by becoming familiar with interpretation of weather, bathymetric maps, and seawater chemistry.
- 2 Identify the major characteristics of water masses found in the oceans.
- 3 Identify the major characteristics of ocean sediments.
- 4 Apply the basic techniques of field studies within the discipline of oceanography.
- 5 Explain the scientific method.
- 6 Use the scientific method to conduct experiments.

Course Content

Lecture/Course Content

None

Laboratory or Activity Content

1. Interpretation of bathymetric maps
2. Identification of water masses and their geographical extent
3. Analysis and interpretation of water chemistry including pH, salinity, and dissolved oxygen
4. Evaluation of sediment types and the environmental controls that determine the formation of sediments
5. Interpretation of air pressure, air masses, and cyclone activity on a weather map
6. Interpretation of beach features including seasonal changes
7. Evaluation of wave types and the environmental controls that determine the formation of waves
8. Evaluation of the plate tectonic model and identification of plate tectonic features, such as a trench
9. Recognition of and interpretation of coastal processes and landforms, such as spits
10. Evaluation of the hazards and risks associated with coastal processes, such as beach erosion

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
Group projects
Individual projects
Laboratory activities
Laboratory reports
Objective exams
Oral presentations
Problem-Solving Assignments
Problem-solving exams
Quizzes
Reports/papers
Research papers
Skills demonstrations
Simulations

Instructional Methodology

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

Audio-visual 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
 Practica
 Small group activities

Describe specific examples of the methods the instructor will use:

1. Instructor will guide students to draw relationships, using maps and photos, between the observed physical environment and oceanographic processes.
2. Instructor will demonstrate the use of parallel rulers.
3. Audio visual presentation concerning plotting a course on a barometric chart.
4. Field trip reports will be used following the scientific method to interpret natural phenomena, such as beach erosion, long-shore current, and sea breeze.
5. Instructor led group discussions on lab results with critical thinking of how and why the scientific process yielded the experimental results.

Representative Course Assignments

Writing Assignments

1. Assigned exercises from the laboratory manual are to be completed by students in class, turned in for evaluation and grading, such as describe the source of sediments from Hollywood Beach.
2. Identify and describe local environments where beaches are eroding.
3. Describe the process of plate tectonics and interpret provided data on seafloor spreading and rate of plate movement.

Critical Thinking Assignments

1. Participate in class and small group discussions to explain laboratory results, such as the slope of the sea floor and how it applies to wave form.
2. Analyze and explain which physical or chemical processes learned in lecture apply to situations described on maps and data charts.

Reading Assignments

Selected readings from physical oceanography text, such as waves and tides.

Selected readings from scientific journals and publications.

Skills Demonstrations

Students will interpret a bathometric map and provide an analysis on the sea floor.

Students will demonstrate how to read results from various instruments, record data, and provide a visual analysis or graphic display of the data.

Other assignments (if applicable)

None

Outside Assignments

Representative Outside Assignments

Readings from selected scientific journals and publications.

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****Course is CSU transferable**

Yes

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****Area F: Ethnic Studies****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**

Manual

Description

ONeil, Thomas (2020). Exercises in Physical Oceanography Laboratory Manual. Oxnard College, Xanedu. Oxnard

Resource Type

Other Instructional Materials

Description

Wall maps, such as map of the world.

Resource Type

Other Instructional Materials

Description

PowerPoint presentations, such as ocean sediments.

Resource Type

Other Instructional Materials

Description

Video presentations, such as waves and beaches.

Resource Type

Other Instructional Materials

Description

Slide presentations, such as waves.

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

BIOLOGICAL SCIENCES

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

01/14/2021

Curriculum Committee

10/28/2020

Board

01/19/2021

CCCCO

MM/DD/YYYY

Control Number

CCC000584546

DOE/accreditation approval date

MM/DD/YYYY