

# MST R178: GEOLOGICAL MARINE RESOURCES

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**Originator**

toneil

**College**

Oxnard College

**Discipline (CB01A)**

MST - Marine Studies

**Course Number (CB01B)**

R178

**Course Title (CB02)**

Geological Marine Resources

**Banner/Short Title**

Geol Marine Resources

**Credit Type**

Credit

**Start Term**

Fall 2021

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

GEOL R178

**Taxonomy of Programs (TOP) Code (CB03)**

1930.00 - Earth Science

**SAM Priority Code (CB09)**

E - Non-Occupational

**Control Number**

CCC000103512

**Primary Minimum Qualification**

EARTH SCIENCE

**Department**

Geology (2185)

**Division**

Oxnard Math/Science/HED/Athletics/PE

**Catalog Course Description**

This field course is an introduction to topics in marine geology related to current resource management issues in this region. Trips to areas where geological, biological, and oceanographic resources can be observed will be combined with related information about resource management and the requirements and applications of federal, state, and local laws and regulations related to marine resource management.

**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)**

B (Transferable to CSU only)

**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**

Will be required

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

Santa Monica Mountains, local beaches, local harbors, the Channel Islands,

**Grading method**

Letter Graded

**Alternate grading methods**

Student Option- Letter/Pass

Pass/No Pass Grading

**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

**Corequisites**

MST R170 or BIOL R170

**Requisite Justification****Requisite Type**

Corequisite

**Requisite**

BIOL R170

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

**Requisite Type**

Corequisite

**Requisite**

MST R170

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

**Student Learning Outcomes (CSLOs)**

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

- |   |   |
|---|---|
| 1 | Students will know some of the effects that pollution and human activity have on the geological marine environment in the local area. |
| 2 | Students will understand the cause of beach erosion at Hueneme Beach  |
| 3 | Students will be able to evaluate the natural resource potential of the local marine environment, such as offshore petroleum deposits |
| 4 | Students will assess the geological resources in various marine areas   |

**Course Objectives**

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

- |   |  |
|---|--|
| 1 | Apply the basic techniques of field studies within the discipline of marine geology  |
| 2 | Explain the importance of developing and applying basic concepts in marine geology by becoming familiar with interpretation of weather, bathymetric maps, and seawater chemistry |
| 3 | Identify marine geologic features in the local area, such as the arch at Anacapa Island  |
| 4 | Explain technical vocabulary, such as Nansen Bottle  |
| 5 | Evaluate the natural resource potential of the local marine environment, such as offshore petroleum deposits   |
| 6 | Describe how to apply the scientific method to field studies, such as the erosion of Hueneme Beach   |
| 7 | Describe the effect that pollution and human activity have on the geological marine environment in the local area, such as runoff from the Santa Clara River                     |

**Course Content****Lecture/Course Content**

None

**Laboratory or Activity Content**

1. Scientific Method
  - a. Statement of problem
  - b. Hypothesis formation and testing using deductive vs. inductive reasoning
  - c. Experimental design factors: Controls, variables, assumptions
  - d. Collection and analysis of data
  - e. Conclusion
2. Formulating a hypothesis
  - a. Erosion at Hueneme Beach is a result of the construction of the jetties at Hueneme Harbor
3. Identifying and utilizing marine field equipment

- a. Clam shell dredge
  - b. Sand sieves
4. Recording and managing data records
  - a. Record the sand grain size from Hueneme Beach
5. Explaining complex interactions between marine geology, oceanography and marine environments
  - a. Explain how the sand moves along the coast of Ventura County
6. Identifying man-made and natural marine geology features
  - a. Identify jetties, groins, and breakwaters
  - b. Identify sea cliffs, marine terraces, and sand spits
7. Preparing figures and tables for presentation of analysis of results
  - a. Plot the sand grain size for Hueneme Beach on a histogram
8. Submitting report of research in scientific format
9. Identification and use of appropriate marine field equipment

## 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  
 Journals  
 Laboratory activities  
 Laboratory reports  
 Objective exams  
 Oral presentations  
 Problem-Solving Assignments  
 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. Students will complete exercises, such as interpretation of topographic maps.
2. 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 about the field trips, such as describe the cause and mitigation of the erosion at Hueneme Beach, and describe the modifications to the jetties and breakwater at Ventura Harbor and subsequent problems at Ventura Harbor, are to be completed by students 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.

### Critical Thinking Assignments

1. Participate in class and small group discussions to explain how the construction of Channel Islands Harbor affected Hueneme Beach.
2. Participate in class and small group discussions to explain how the the Mugu Canyon has affected Hueneme Beach.

### Reading Assignments

1. Selected readings from geology and marine studies literature about the field trips, such as beach erosion at Hueneme Beach, dredging at Channel Islands Harbor, effects of storm water runoff on the local environment, and erosion at Oxnard Shores.
2. Selected readings from periodicals and magazines such as *Scientific American*

### Skills Demonstrations

1. Students will demonstrate proper use of tools used in assessment of geological resources. Examples: sediment samplers and corers, secchi disc, sand sieves, Brunton Compass.

### Other assignments (if applicable)

1. Group discussions of the interests of different stakeholders in geological resource management.

## Outside Assignments

### Representative Outside Assignments

1. Laboratory course

**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****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**

Textbook

**Description**Prothero, Donald R. (2016). *California's Amazing Geology* (1). CRC Press. 9781498707**Resource Type**

Textbook

**Description**Griggs, GB (2005). *Living with the Changing California Coast*. Berkeley University of California Press.**Resource Type**

Textbook

**Description**

Griggs, G.B. (2010). *Introduction to California Beaches and Coasts*. Berkley University of California Press. 0520262905

**Resource Type**

Other Instructional Materials

**Description**

Topographic maps such as the topographic map of Ventura County.

**Resource Type**

Other Instructional Materials

**Description**

Physical Model Study of Scour at Ventura Harbor, California [www.cirp.wes.army.mil/cirp/scour/ventura/cercular.html](http://www.cirp.wes.army.mil/cirp/scour/ventura/cercular.html).

**Resource Type**

Other Instructional Materials

**Description**

Dredging for the Channel Islands Harbor [www.spl.usace.army.mil/co/navigation/chnlisln/channel.html](http://www.spl.usace.army.mil/co/navigation/chnlisln/channel.html) .

**Resource Type**

Other Instructional Materials

**Description**

Dredging Material Placement Options at Ventura Harbor [www.coastalconference.org/.../pdf/ASessions/F2A/Avendano\\_Differential%20Cost%20Benefit%20Analysis%20H02.pdf](http://www.coastalconference.org/.../pdf/ASessions/F2A/Avendano_Differential%20Cost%20Benefit%20Analysis%20H02.pdf).

**Resource Type**

Other Instructional Materials

**Description**

Reading packet which includes current literature on the topics of the field trips.

**Resource Type**

Other Instructional Materials

**Description**

PowerPoint presentations.

**Resource Type**

Other Instructional Materials

**Description**

Use of the internet.

**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: <ul style="list-style-type: none"> <li>• Recorded Lectures, Narrated Slides, Screencasts</li> <li>• Instructor created content</li> <li>• OC Online Library Resources</li> <li>• Canvas Peer Review Tool</li> <li>• Canvas Student Groups (Assignments, Discussions)</li> <li>• 3rd Party (Publisher) Tools (MyOpenMath)</li> <li>• Websites and Blogs o Multimedia (YouTube, Films on Demand, 3CMedia, Khan Academy, etc.)</li> </ul>

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.
<b>Hybrid (51%–99% online) Modality:</b>	
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 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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**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

09/16/2020

### Dean

09/16/2020

### Technical Review

09/23/2020

### Curriculum Committee

09/23/2020

### DTRW-I

12/10/2020

### Curriculum Committee

01/13/2021

### Board

01/19/2021

### CCCCO

MM/DD/YYYY

### Control Number

CCC000591856

### DOE/accreditation approval date

MM/DD/YYYY