

MST R100: MARINE BIOLOGY

Originator

snewby

College

Oxnard College

Discipline (CB01A)

MST - Marine Studies

Course Number (CB01B)

R100

Course Title (CB02)

Marine Biology

Banner/Short Title

Marine Biology

Credit Type

Credit

Start Term

Fall 2021

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

BIOL R100

Taxonomy of Programs (TOP) Code (CB03)

0401.00 - Biology, General

SAM Priority Code (CB09)

E - Non-Occupational

Control Number

CCC000601912

Primary Minimum Qualification

BIOLOGICAL SCIENCES

Department

Biology (2021)

Division

Oxnard Math/Science/HED/Athletics/PE

Catalog Course Description

This course provides an introduction to the diversity of marine organisms and the physical and biological processes that influence their life history, behavior, distribution, and anatomical structure. Topics also address the interactions of these organisms and processes in a variety of habitats, marine ecology, and marine conservation.

Taxonomy of Programs (TOP) Code (CB03)

0401.00 - Biology, General

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, harbors, islands, and natural history museums or aquaria

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

Advisories on Recommended Preparation

READ R095 or ESL R095 and ENGL R097 or ENGL R100 or ENGL R101

Entrance Skills**Entrance Skills**

Be able to read at a college level.

Prerequisite Course Objectives

ESL R095-Demonstrate increased reading comprehension of content specific materials from a variety of disciplines.

ESL R095-Demonstrate an expanded vocabulary and understanding of general academic, technical, and domain-specific words and phrases sufficient for reading and writing at the college and career readiness levels.
 ESL R095-Read at a faster rate through skimming and scanning skills.
 ESL R095-Use critical reading skills to evaluate and judge reading materials.
 ESL R095-Read with comprehension a variety of genres: college textbooks, journal articles, short stories, poetry, essays, newspapers, and commentaries
 READ R095-Demonstrate increased reading comprehension of content specific materials from a variety of disciplines.
 READ R095-Demonstrate an expanded vocabulary and understanding of general academic, technical, and domain-specific words and phrases sufficient for reading and writing at the college and career readiness levels.
 READ R095-Read at a faster rate through skimming and scanning skills.
 READ R095-Read with comprehension a variety of genres: college textbooks, journal articles, short stories, poetry, essays, newspapers, and commentaries

Entrance Skills

Ability to write college level essays.

Prerequisite Course Objectives

ENGL R097-Write short essays of at least five paragraphs with effective introductory paragraphs; well-organized, coherent, and detailed support of thesis; and effective conclusions
 ENGL R097-Write essays with acceptable college-level grammar, syntax, spelling, and idiomatic usage
 ENGL R097-Analyze essay exam questions and organize and write effective responses

Entrance Skills

Be able to read and write at a college level.

Prerequisite Course Objectives

ENGL R100-Write essays with acceptable college-level grammar, syntax, spelling, and idiomatic usage.
 ENGL R100-Analyze essay exam questions and organize and write effective responses.
 ENGL R100-Read college-level materials and recognize the main idea.
 ENGL R100-Distinguish fact from opinion.

Entrance Skills

Ability to read and write at a college level.

Prerequisite Course Objectives

ENGL R101-Demonstrate college-level control of mechanical elements of writing such as grammar, syntax, spelling, vocabulary, and idiomatic usage
 ENGL R101-Demonstrate critical thinking skills and rhetorical awareness in analyzing others' non-fiction writing and in developing essays

Requisite Justification

Requisite Type

Advisory

Requisite

READ R095

Requisite Description

Course not in a sequence

Level of Scrutiny/Justification

Content review

Requisite Type

Advisory

Requisite

ESL R095

Requisite Description

Course not in a sequence

Level of Scrutiny/Justification

Content review

Requisite Type

Advisory

Requisite

ENGL R097

Requisite Description

Course not in a sequence

Level of Scrutiny/Justification

Content review

Requisite Type

Advisory

Requisite

ENGL R100

Requisite Description

Course not in a sequence

Level of Scrutiny/Justification

Content review

Requisite Type

Advisory

Requisite

ENGL R101

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 | Identify major groups of marine organisms. |
| 2 | Predict the range of a marine organism based on abiotic factors. |
| 3 | Design a controlled experiment. |

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

- | | |
|---|--------------------------------------------------------------------------------------------|
| 1 | Identify major groups of marine organisms |
| 2 | Describe marine organism adaptations |
| 3 | Outline the physical, chemical, and geological aspects of the marine environments examined |
| 4 | Describe the range of ocean habitats and the organisms within each habitat |
| 5 | Explain how organisms, including humans, within and among ocean habitats interact |

- | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | Predict the effects of certain types of disturbance on the marine ecosystem and individual inhabitants and explain how to test that prediction with the scientific method |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Course Content

Lecture/Course Content

1. The Scientific Method
 - a. Observations
 - b. Hypothesis
 - c. Controlled experiment
 - d. Data and results
 - e. Conclusion and discussion
2. Physical, Chemical, and Geological Features of the Ocean Environment
 - a. Tides
 - b. Pressure
 - c. Salinity
 - d. Temperature
 - e. Acidity
 - f. Seafloor features
3. Diversity of Ocean Life Forms and Adaptations
 - a. Ocean life forms
 - i. plankton
 - ii. marine macrophytes
 - iii. marine invertebrates
 - iv. marine chordata
 - b. Adaptations
 - i. living in salt water
 - ii. living in the intertidal
 - iii. getting oxygen
 - iv. getting food
 - v. avoiding being food
4. Ocean Habitats and Their Communities
 - a. Intertidal habitats
 - b. Coastal ocean habitats
 - c. Deep sea habitats
5. Processes and Interactions Affecting the Adaptation, Distribution, and Abundance of Marine Life
 - a. Plate tectonics
 - b. Evolution
 - c. Abiotic factors
 - d. Biotic factors
 - e. El Niño
6. Marine Resources and the Effect of Humans on Marine Ecosystems
 - a. Fishing
 - b. Marine pollution
 - c. Ocean acidification
 - d. Federal and state management agencies and policies

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):

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
 Objective exams
 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
 Instructor-guided interpretation and analysis
 Internet research
 Lecture
 Role-playing
 Small group activities

Describe specific examples of the methods the instructor will use:

1. Instructor will utilize lecture, film, internet materials, and live and preserved specimens to explore and explain topics relative to the understanding and application of marine biology such as different adaptations for egg fertilization in water.
2. The instructor will lead discussions on topics that may include the impacts human choices on land have on ocean life, the scientific method and how to design an experiment, and the sustainability of commercial seafood fisheries.
3. Students will critically analyze marine protected area stakeholder's viewpoints and consider how to address the needs of multiple interest groups and the needs of the organisms to be protected in the development of marine protected area management plans.

Representative Course Assignments

Writing Assignments

1. Paragraphs and short papers describing characteristics of specific marine organisms, habitats, or human impacts on ocean environments. Example: Give an overview of the biological characteristics of your selected marine organism needed to determine the sustainability of the fishery. Include the range, habitat, trophic level, and reproductive method including age of first reproductive event, number of eggs produced, and how long the organism lives.
2. Paragraph and short paper based on fieldwork. Example: Conduct observations of an outdoor location for a total of two hours spread out of two days. Write a summary of what you observed indicating any patterns you noticed.
3. Short analytic paper on point of view of specific marine protected area stakeholder based on internet and library research. Example: Provide the point of view of commercial crab fishermen and their ideal plan for the management of the indicated marine protected area. Provide at least three reasons for the point of view with citations to back them up.

Critical Thinking Assignments

1. Students identify unknown organism to the correct phylum based on visible organism characteristics.
2. Students develop an explanation and testable prediction for one of the patterns noticed in the observations writing activity.
3. Students will work together to develop an experimental plan for testing one of their predictions including control and experimental groups, independent, dependent, and controlled variables, and expected outcomes.
4. Student will predict the expected range of an organism in a specific location based on the organism requirements and the abiotic conditions of the water.

Reading Assignments

1. One or two chapters per week from the course textbook.
2. Newspaper articles discussing recent discoveries, legislation, or actions relevant to the marine environment, such as the impact of plastic on the marine environment.
3. Scientific primary literature on relevant topics such as Kurihara, H. and Y. Shirayama. 2004. *Effects of increased atmospheric CO₂ on sea urchin early development*. Marine Ecological Progress Series 274:161-169

Other assignments (if applicable)

1. Data collection of food and other grocery items containing compounds derived from algae.
2. Data collection of sustainability information of seafood items available for purchase at local or online vendors.
3. Field trip to local marine habitats.

Outside Assignments**Representative Outside Assignments**

1. Weekly online quizzes related to the course material for that week.
2. Participate in online discussions related to the course topic for that particular week. Topics may include: interconnections between the land and ocean, the beauty and variety of marine diatom and radiolarian tests, and newly discovered marine organisms.
3. Weekly worksheets related to the course material. Example: Diagram a food web using the provided information about what each organism eats and what eats it.
4. Film or video viewing documented by completion of a worksheet specific to the assigned film. Example: Upon viewing of Blue Planet: Shallow Seas, how do mother and calf whales stay in contact when migrating to the poles from the equatorial nursery grounds?

Articulation**Comparable Courses within the VCCCD**

BIOL M03 - Marine Life and It's Environment

District General Education**A. Natural Sciences****A1. Biological Science**

Approved

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****B2 Life Science**

Approved

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 5B: Biological Science

Approved

Area 6: Languages Other than English (LOTE)

Textbooks and Lab Manuals

Resource Type

Textbook

Classic Textbook

No

Description

Castro, P. and M.E. Huber (2019). *Marine Biology* (11th). Boston McGraw-Hill.

Resource Type

Other Resource Type

Description

Niesen, T.M. 2000. *Marine Biology Coloring Book* 2nd Edition. Collins Reference. This is the most recent edition.

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)	Frequent discussions will be used. Typical discussions may ask student to find and present image of plankton artwork, give and reply to opinion on newspaper article about ocean topic such as the impacts of carbon dioxide on ocean health, or to ask for and aid fellow students with unit question and answers.
Other DE (e.g., recorded lectures)	Frequent use of recorded lectures on marine biology topics such as phylum characteristics.
Video Conferencing	Use of video conferencing for question and answers and content delivery of specific topics such as differences between the control and experimental groups in an experiment. Video conferences will be recorded and posted for asynchronous viewing.
E-mail	Email will be available for student to instructor communications.

Hybrid (51%–99% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Frequent discussions will be used. Typical discussions may ask student to find and present image of plankton artwork, give and reply to opinion on newspaper article about ocean topic such as the impacts of carbon dioxide on ocean health, or to ask for and aid fellow students with unit question and answers.
Other DE (e.g., recorded lectures)	Frequent use of recorded lectures on marine biology topics such as phylum characteristics.
Video Conferencing	Use of video conferencing for question and answers and content delivery of specific topics such as differences between the control and experimental groups in an experiment. Video conferences will be recorded and posted for asynchronous viewing.
E-mail	Email will be available for student to instructor communications.

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Frequent discussions will be used. Typical discussions may ask student to find and present image of plankton artwork, give and reply to opinion on newspaper article about ocean topic such as the impacts of carbon dioxide on ocean health, or to ask for and aid fellow students with unit question and answers.
Other DE (e.g., recorded lectures)	Frequent use of recorded lectures on marine biology topics such as phylum characteristics.
Video Conferencing	Use of video conferencing for question and answers and content delivery of specific topics such as differences between the control and experimental groups in an experiment. Video conferences will be recorded and posted for asynchronous viewing.
E-mail	Email will be available for student to instructor communications.

Examinations

Hybrid (1%–50% online) Modality

Online

On campus

Hybrid (51%–99% online) Modality

Online

On campus

Primary Minimum Qualification

BIOLOGICAL SCIENCES

Additional Minimum Qualifications

Minimum Qualifications

Ecology

Review and Approval Dates

Department Chair

09/15/2020

Dean

09/16/2020

Technical Review

10/14/2020

Curriculum Committee

10/14/2020

DTRW-I

MM/DD/YYYY

Curriculum Committee

11/25/2020

Board

MM/DD/YYYY

CCCCO

MM/DD/YYYY

Control Number

CCC000584544

DOE/accreditation approval date

MM/DD/YYYY