

SIO126 Marine Microbiology

SIO126 is an introduction to the unicellular microbes that live in the oceans and how they interact with their physical and chemical environment and each other.

Time and location: MWF 9-9:50. Pepper Canyon 121

Instructor: Brian Palenik, 3110 Hubbs Hall, SIO
Phone: 858-534-7505, email: bpalenik@ucsd.edu
Office hours: By appointment

TA: Sara Rivera <s6rivera@ucsd.edu>

Course web site: Canvas

The lecture notes (ppt slides) will be available usually on the day of the lecture.

Sections: W 11-11:50 (Center Hall, 207) F 11-11:50 (Center 207).

First sections will be **Jan 15 (W section), Jan 10 (F section).**

Grading: There will be three quizzes and a final exam. The final exam will count for 30% of the grade. The lowest quiz score will be dropped and the remaining two will count for 50%. The quizzes will be a combination of multiple choice, short answer, and short essay and will cover the material immediately preceding them. The final will be comprehensive and will be similar to the quizzes in format. Three short assignments will count for 5% each. These are typically short 1 page paper reviews of assigned papers. Section attendance and participation will count for 5%.

Cheating: The University imposes strict guidelines on academic integrity (<https://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2>) and these will be enforced. Anyone caught cheating will receive an F for the course and will be reported to the Academic Integrity coordinator. Please bring a photo ID to all exams and quizzes. You may be required to sign an attendance sheet when you turn in your exams.

Recommended Texts:

Review Articles: An entire issue of Nature Reviews Microbiology has been devoted to marine microbiology (5:2007).

<http://www.nature.com/nrmicro/focus/marinemicrobiology/index.html>

Schedule

M Jan 6 Introduction to the marine environment

W Jan 8 Physics of the marine environment

F Jan 10 Chemistry of the marine environment

M Jan 13 Methods in Marine Microbiology A (Field sampling etc)

W Jan 15 Methods in Marine Microbiology B (Molecular approaches)

F Jan 17 Methods in Marine Microbiology C (Genomics)

M Jan 20 Holiday MLK

W Jan 22 The Prokaryotic Cell

F Jan 24 Phylogenetic Diversity of Marine Prokaryotes

M Jan 27 **Quiz 1 (material through Jan 25)**
W Jan 29 Metabolic Diversity A
F Jan 31 Metabolic Diversity B **Assignment 1 Due in Class**

M Feb 3 Metabolic Diversity C Eukaryotic Diversity (Phototrophs)
W Feb 5 Eukaryotic Diversity (Heterotrophs/Mixotrophs)
F Feb 7 Professor Peter Franks Phytoplankton

M Feb 10 Marine Viruses
W Feb 12 The Microbial Loop
F Feb 14 Cold Deep Sea and Hydrothermal Vents

M Feb 17 Holiday
W Feb 19 **Quiz 2**
F Feb 21 Marine Microbes and Disease I

M Feb 24 Marine Microbes and Disease II **Assignment 2 Due in class**
W Feb 27 Sea Ice/Changing Oceans
F Feb 28 Marine Metagenomics in Diverse Environments

M Mar 2 Symbiotic Associations A
W Mar 4 Symbiotic Associations B
F Mar 6 Professor Paul Jensen, Marine Natural Products

M Mar 9 **Quiz 3**
W Mar 11 Symbiotic Associations C **Assignment 3 Due in class**
F Mar 13 Current directions and developments in marine microbiology

FINAL W March 18, 8-11, Location TBA.

Writing assignments.

Writing assignments are summaries of provided papers (different from occasional class readings)

Summaries address three main questions:

- 1) What research questions/hypotheses was the paper trying to address and why?
- 2) What methods did it use?
- 3) What were its conclusions? How this contribute to our understanding of the field?

Papers are meant to be about 1 page of about three paragraphs. DO NOT USE LISTS.

Please turn it in as a hard copy in class AND Online.

The following may help you write a summary for is assignment.

<https://www.wikihow.com/Summarize-a-Journal-Article>