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 with each other.

Time and location: MWF 9-9:50 Mosaic 0204
Instructor: Brian Palenik, 3110 Hubbs Hall, SIO
Phone: 858-534-7505, email: bpalenik@ucsd.edu
"Office" hours: By appointment
IA: Catherine Mullenmeister cmullenm@ucsd.edu

Course web site: Canvas
The lecture notes (pptx) will be available usually on the day of the lecture.

Sections:
Wednesdays 1-1:50pm Centr 205
Fridays 2-2:50pm Centr 217B

Grading:
There will be three ONLINE quizzes (30 pts each). You will take these during the class time but not in class. Each quiz will have two parts, one a vocabulary/concept part (25%) and one part with short essays (75%). We will take the two highest of your three quizes for 60% of your grade (60 pts). There is an in-class final (20%) on 3/19/2024 8am-11am with location TBA (likely MOS 204).
Three short IN CLASS assignments will count for 5% each (15 % total). To do these, you will need to read two assigned papers and then answer questions about them. You can bring the papers to class. You will have 30 minutes.
Class and Section attendance and participation will count for 5%.
Note: even if taken P/NP all quizes and exams must be taken.

Academic Integrity
Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result sanctions. Sanctions can include an F in this class and suspension or dismissal from the University. So, think carefully before you act by asking yourself: a) is what I'm about to do or submit for credit an honest, fair, respectful, responsible & trustworthy representation of my knowledge and abilities at this time and, b) would my instructor approve of my action? You are ultimately the only person responsible for your behavior. So, if you are unsure, don't ask a friend—ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at academicintegrity.ucsd.edu (Source: Academic Integrity Office, 2018)

We have three short in class writing assignments and plagiarism has been an occasional issue in this class. Plagiarism of a writing assignment will result in a 0 for that assignment and will be reported to the Academic Integrity office. Plagiarism includes copying material from sources without citation. **Do not copy sentences or even partial sentences from the papers you are summarizing.** Putting text from papers in quotes as part of a citation is not appropriate in scientific writing. We will discuss strategies for writing paper summaries in section.
ChatGP is not to be used in this course.

Anyone caught cheating on a quiz or final exam will receive an F for the course and will be reported to the Academic Integrity coordinator.

Recommended Texts: There is no text book for this course.

Review Articles: An entire issue of Nature Reviews Microbiology was been devoted to marine microbiology (5:2007) and is still relevant.
https://www.nature.com/collections/cqptywsnrr

I believe that learning partly occurs through interactions during class time. It is a chance for me to understand what concepts I might need to explain better as well as a chance for you to synthesize material from this class and others by asking questions. I expect class and section participation. I do not make accommodations for conflicts with double-scheduled classes.

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 **Assignment 0 Due**
(Assignment 0: Ungraded but **required** will be an assignment to find a paper you find interesting in AEM or Environmental Microbiology. You will turn in the title and abstract of the paper online by the end of the first week.)

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 **ONLINE Quiz 1 (Jan 8-Jan 22)**
W Jan 29 Metabolic Diversity A
F Jan 31 Metabolic Diversity B **IN CLASS Assignment 1 (paper 1 and 2)**

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

M Feb 10 Marine Viruses
W Feb 12 **ONLINE Quiz 2 (material from Jan 24-Feb 10)**
F Feb 14 The Microbial Loop

M Feb 17 Holiday
W Feb 19 Phytoplankton blooms
F Feb 21 Cold Deep Sea and Hydrothermal Vents **IN CLASS Assignment 2 (paper 3 and 4)**

M Feb 24 Sea Ice/Changing Oceans
W Feb 26 Marine Microbes and Disease I
F Feb 28 Marine Microbes and Disease II

M Mar 3 **ONLINE Quiz 3 (material from Feb 14- Feb 28)**
W Mar 5 Marine Natural Products Prof. April Lukowski
F Mar 7 Symbiotic Associations A

M Mar 10 Symbiotic Associations B
W Mar 12 Symbiotic Associations C
F Mar 14 Current directions and developments in marine microbiology **IN CLASS Assignment 3 (paper 5 and 6)**

FINAL 03/19/2025 W 9:00a-10:30 am Location TBA (likely MOS204)
It will cover Symbiosis and any other topics from the class.