

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. Pepper Canyon 121 (**online via zoom until further notice**)

Instructor: Brian Palenik, 3110 Hubbs Hall, SIO
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“Office” hours: By appointment

IA: Ivan Moreno. imoreno@ucsd.edu

Course web site: Canvas

The lecture notes (pptx) will be available usually on the day of the lecture. Recordings of the lectures will be made available afterwards.

Sections: Mondays M 6:00p-6:50p CENTR 207
Thursdays Th 12:30p-1:20p NIERN 101
(Online via zoom at these times until further notice)

Grading: There will be four quizzes (20 pts each). Each quiz will have two parts, one a vocabulary/concept part (25%) and one part with short essays (75%). **The quizzes will be taken online but during class time.** Three short assignments will count for 5% each (15 % total). These are typically short 1 page paper reviews of assigned papers. Class and Section attendance and participation will count for 5%.

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 several short 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. 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. Plagiarism includes copying material from sources without citation. 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.

Recommended Texts: A few in- class readings will be assigned and may be referred to in the quizzes. Some of the reading will be used for summary writing prompts.

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>

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. Despite being online, I expect class and section participation.

SCHEDULE

M Jan 3 Introduction to the marine environment

W Jan 5 Physics of the marine environment

F Jan 7 Chemistry of the marine environment

M Jan 10 Methods in Marine Microbiology A (Field sampling etc)

W Jan 12 Methods in Marine Microbiology B (Molecular approaches)

F Jan 14 Methods in Marine Microbiology C (Genomics)

M Jan 17 Holiday MLK

W Jan 19 The Prokaryotic Cell

F Jan 21 **Quiz 1 (material through Jan 15)**

M Jan 24 Phylogenetic Diversity of Marine Prokaryotes

W Jan 26 Metabolic Diversity A

F Jan 28 Metabolic Diversity B **Assignment 1 Due**

M Jan 31 Metabolic Diversity C

W Feb 2 Eukaryotic Diversity (Phototrophs)

F Feb 4 Eukaryotic Diversity (Heterotrophs/Mixotrophs)

M Feb 7 Marine Viruses

W Feb 9 Phytoplankton blooms/ The Microbial Loop

F Feb 11 **Quiz 2 (material from Jan19-Feb 4)**

M Feb 14 Cold Deep Sea and Hydrothermal Vents

W Feb 16 Marine Microbes and Disease I **Assignment 2**

F Feb 18 Marine Microbes and Disease II

M Feb 21 Holiday
W Feb 23 Sea Ice/Changing Oceans
F Feb 25 **Quiz 3 (material from Feb 7-Feb 18)**

M Feb 28 Symbiotic Associations A
W Mar 2 Symbiotic Associations B
F Mar 4 Symbiotic Associations C **Assignment 3 Due**

M Mar 7 Marine Natural Products
W Mar 9 Current directions and developments in marine microbiology
F Mar 11 **Quiz 4 (Feb 23- Mar 9 and review questions of all material)**
FINAL **No final unless the situation changes. It is scheduled for**
03/16/2022 W 8:00a-10:59a

Writing assignments.

Writing assignments are summaries of provided papers (these are different from occasional class readings) There will be three.

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 Online.

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

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