

## BIOL142: Marine Science - Online

Instructor: **Dr. Michelle Paddack** Email: [mjpaddack@sbcc.edu](mailto:mjpaddack@sbcc.edu)

**Spring 2022 Course Schedule.** All materials can be found in our BIOL142 tab in Canvas

<b>Week of</b>	<b>Website reading assignment</b> (conduct these during the week, providing yourself enough time to study for the weekly quiz on the material at the end of the week & to do the other assignments)	<b>Assignments</b> (all assignments are due on <b>Fridays by 11:59pm PT</b> at the end of the week unless otherwise noted)
Jan 17	Week 1: <b>Introduction to Marine Science</b> <ul style="list-style-type: none"> <li>● 1. Course Introduction</li> <li>● 2. scientific method &amp; studying the ocean</li> </ul>	Thought Question 1 (Intro videos) Quiz 1
Jan 25	Week 2: <b>Ocean origin &amp; Structure</b> <ul style="list-style-type: none"> <li>● 3. World Ocean (Beginnings, Zones, basins)</li> <li>● 4. Water &amp; life</li> </ul>	Respond to TQ1 Quiz 2 Plan Scientific Experiment
Jan 31	Week 3: <b>Living in Water: Temperature</b> <ul style="list-style-type: none"> <li>● 5. Temperature &amp; adaptations</li> <li>● 6. Partial endothermy</li> </ul>	Quiz 3 Conduct scientific experiment & write report TQ 2 (Experiments)
Feb 7	Week 4: <b>Living in Water: Gases &amp; Salt</b> <ul style="list-style-type: none"> <li>● 7. Density: ocean layering; Dissolved gases</li> <li>● 8. Breathing in the ocean</li> </ul>	Quiz 4 <b>Scientific Expt Paper Due</b> Study for Exam 1
Feb 14	Week 5: <b>Exam 1 &amp; Salinity</b> <ul style="list-style-type: none"> <li>● Exam 1</li> <li>● 9. Salinity</li> </ul>	Study for & take Exam 1 on Mon or Tuesday (your choice) No quiz this week
Feb 21	Week 6: <b>Currents</b> <ul style="list-style-type: none"> <li>● 10. Osmosis &amp; Osmoregulation</li> <li>● 11. Currents: causes &amp; patterns</li> </ul>	TQ 3 Quiz 5 Find & read article & begin Journal Report 1
Feb 28	Week 7: <b>Marine Primary Production</b> <ul style="list-style-type: none"> <li>● 12. Photosynthesis &amp; Productivity Cycles</li> <li>● 13. Marine Photosynthesizers</li> </ul>	Select & clear Research Paper Topic TQ 4 Quiz 6 <b>Journal Report 1 DUE</b>
Mar 7	Week 8: <b>Tropical Ecosystems</b> <ul style="list-style-type: none"> <li>● 14. Coral Reefs</li> <li>● 15. Mangrove Forests</li> </ul>	Read for Research Paper TQ 5 Quiz 7
Mar 14	Week 9: <b>Tides &amp; Intertidal Life</b> <ul style="list-style-type: none"> <li>● 16. Why tides</li> <li>● 17. Intertidal Life</li> </ul>	Quiz 8 Write Research Paper Study for Exam 2
Mar 21-27	Spring Break!	Relax!
Mar 28	Week 10: <b>Exam 2 &amp; Migrators</b> <ul style="list-style-type: none"> <li>● 18. Marine migrators I &amp; II</li> </ul>	Finalize Research Paper Quiz 9
Apr 4	Week 11: <b>Marine Ecosystems: Deep sea</b> <ul style="list-style-type: none"> <li>● 18c. Marine Migrators III</li> <li>● 19. Bioluminescence</li> </ul>	TQ 6 Quiz 10 <b>Research Project Due</b>
Apr 11	Week 12: <b>Deep Sea; Climate Change</b> <ul style="list-style-type: none"> <li>● 20. Mesopelagic &amp; Deep Sea</li> <li>● 21. Hydrothermal vents</li> </ul>	Quiz 11 □ <b>Peer review Due</b> Find & read journal article Prepare video for journal report
Apr 18	Week 13: <b>Changing Oceans</b>	Quiz 12

	<ul style="list-style-type: none"> <li>22. Climate Change</li> </ul>	Revise project <b>FINAL version of Research Project Due</b>
Apr 25	Week 14: <b>Ocean Futures</b> <ul style="list-style-type: none"> <li>23. Challenges &amp; Solutions</li> </ul>	VIDEO Ocean Optimism Due Study for final exam
May 2	Week 15: <b>Wrap-up</b>	TQ 7 responses due Study for final exam
May 9-11	<b>Exam 3 (Final Exam)</b>	

**Course Description:** Marine science introduction to oceanography and marine biology: ocean properties, marine ecology of the tropics, poles, temperate and deep-sea regions, and marine environmental concerns. *Satisfies SBCC General Education requirement in Natural Sciences.* 3 units.

**Student Learning Outcomes:**

- 1 - Physical - Summarize the physical marine environment on Earth, historically, geologically and chemically (seawater) including how changes may cause phenomena such as El Nino.
- 2 - Geographical - Describe physical, biological properties & ecological properties of major marine environments such as Coral Reefs, Polar environments, and Deep-sea
- 3 - Sci Method – Understand the why & how of the scientific method. Apply the scientific method- ask a question, create a hypothesis, design an experiment, gather data, interpret data.
- 4 - Environmental - Recognize the interconnected marine environment on Earth by identifying the oceans' major migrators and their adaptations to this lifestyle and by summarizing worldwide marine environmental concerns and solutions.

**Course Grading**

Points are earned as follows:

Assignment	# due	Points per	Total points	% of grade
Quizzes	12	10	120	16%
Thought Discussions	8	10	80	11%
Exams	3	100	300	40%
Scientific Experiment	1	50	50	7%
Journal Report	1	50	100	7%
Oral Report	1	50	50	7%
Research Paper	1	100	100	13%

**NOTE: 10% per day late will be deducted from grades for all late assignments**

Your final grade in this course will be calculated as the % of the total possible of 750 points you earn during the course. Your corresponding letter grade will be assigned using the scale below.

Final grades are determined according to the following scale:

- |            |            |            |            |
|------------|------------|------------|------------|
| A+: ≥97%   | B+: 86-87% | C+: 75-78% | D+: 67-69% |
| A: 91-96%  | B: 82-85%  | C: 70-74%  | D: 60-66%  |
| A-: 88-90% | B-: 79-81% |            | F: <60%    |

Students taking pass/no pass must get at least 70% to pass the class.

A student who shows strong effort and/or improvement in the course may be bumped up into the next higher level at the instructor's discretion.

## **Assignments:**

### **Lessons**

The 'text book' for this course is your online readings found within each week's module. Each week will contain 1-3 lessons which will include readings & videos.

### **Quizzes**

We will have weekly quizzes on the reading material during all weeks with the exception of weeks with exams. The quizzes will be based upon the class lessons for the week, so plan to do all readings & lessons found within the Canvas module for each week before taking the quiz. Quizzes will be multiple choice and conducted through Canvas. **They are due each week on Friday by midnight PST (Pacific Standard Time).** If you miss more than 2 consecutive quizzes, you will be dropped. Consideration for late quizzes will only be given with a documented emergency.

### **Thought Discussion Questions (TQ)**

You will have 8 thought questions due throughout the course. These will be 'Discussion' assignments in Canvas in which you will provide a response to the posted question. Your submission will consist of a short writing in response to the question. You will be required to also read and respond to at least 2 posts from your classmates. The purpose of these is to stimulate creative and critical thinking and to provide an interactive space with your peers. Enjoy the process and allow yourself to have fun thinking. For many of these, there is no 'right' answer – you will be graded on the thoughtfulness of your posting and the quality of your responses to the postings of your classmates. You will be given details about each question.

### **Writing & Oral Assignments**

In addition to quizzes & questions, you will do 4 formal writing assignments: a Scientific Experiment Report, a Marine Journal Reports, and a Research Paper. You will also do a 2<sup>nd</sup> Journal Report as a video rather than a paper. Detailed instructions for each of these will be provided and can be found in the Assignments tab in Canvas.

### **Exams**

Three exams, each worth 100 points, will be administered online via Canvas in a proctored timed mode. A study guide of questions you will be expected to know the answers to will be provided. Weekly quizzes and questions will model what the exams will be like. Students who do not complete exam 1 will be dropped. To pass the class, you must take all 3 exams.