

Program learning outcomes for Marine Science

Marine Science B.S. Program Student Learning Objectives with Bloom's taxonomy of educational objectives in parentheses.

Upon completion of the degree, Marine Science students will be able to:

- SLO1 Explain core concepts in Marine Biology and Oceanography. (*Comprehension through Evaluation*)
- SLO2 Examine and discuss current scientific issues using information from the primary literature and from class content. (*Analysis and Synthesis*)
- SLO3 Describe, and apply, key concepts of lab and field safety. (*Application*)
- SLO4 Perform core oceanographic and marine biology-based lab techniques. (*Application*)
- SLO5 Access the primary literature to find scholarly articles that discuss the results of experiments. (*Application*)
- SLO6 Summarize scholarly articles from the primary literature, and synthesize summarized information into a literature review. (*Synthesis*)
- SLO7 Write a testable hypothesis. (*Application*)
- SLO8 Design and carry out a controlled scientific experiment. (*Synthesis and Evaluation*)
- SLO9 Choose and use appropriate statistical methods to analyze experimental data. (*Analysis and Evaluation*)
- SLO10 Report experimental results in graphs and tables. (*Synthesis*)
- SLO11 Interpret graphically presented data (*Evaluation*)
- SLO12 Draw conclusions from experimental results. (*Evaluation*)
- SLO13 Write a scientific paper that reports the results of an experiment, following accepted guidelines for publication in a scientific journal. (*Synthesis and Evaluation*)
- SLO14 Create and deliver an oral presentation appropriate for a scientific conference or symposium. (*Synthesis and Evaluation*)
- SLO15 Apply knowledge gained from courses by interacting with global and/or local communities. (*Synthesis*)

MARE 250 - Statistical Apps. in Marine Science	R			P	P			P	P	I	P	P	P	I/P	P	
MARE 264 – QUEST	E		P	M	M	M	M	P	P	P	P	P	P	P	P	P
MARE 265 – Marine Ecology & Evolution	R	P	P			I/P	P					P				
MARE 282 - Global Change	E	I	I									I				
MARE 310 - The Atoll Ecosystem	E	M	M			P	P					P				
MARE 325 – Coral Reef Ecology	E	P	P			P	P									
MARE 350/ 353 – Coastal or Pelagic Methods and Analysis and Lab	R	M	M	P	M	P	P	P	M	P	P	P	P	P	P	
MARE 360 – Marine Resources	E															
MARE 364 – Advanced QUEST	E		P	M	M	M	M	P	P	P	P	P	P	P	P	P
MARE 371/L – Biology of Marine Inverts. and Lab	E	P	P	P			P				P	P				
MARE 372/L – Biology of Marine plants and Lab	E	P	P	P	P	P	P	P	P	P	P	P	P	P		
MARE 380/L – Natural History of Sharks and Rays and Lab	E	P	M	P	P	M	M					M	M			
MARE 390/L – Biology of Marine Mammals and Lab	E	P	M	P	P	M	M					M	M			
MARE 405 – Watersheds	E	M	M				M					M				

MARE 410 – Marine Debris	E	M	M	M	P	P	P	P	P	P	P	P	P	P	I	
MARE 425 – Chemical Oceanography	R/E	M	M									M				
MARE 434 – Teaching Marine Science	E	M	P/M	M	P/M	P/M	P	P	P		P/M	P/M	P/M	P	M	M
MARE 435 – Marine Field Experience for Teachers	E	M	P/M	M	P/M	P/M	P	P	P		P/M	P/M	P/M	P	P	M
MARE 440 – Physical Oceanography	R/E	M	M			M	M					M			P	
MARE 444 – Biological Oceanography	E	M	M			M	M					M			P	
MARE 460 – Marine Conservation	E	M	M			M	M					M			P	
MARE 461 – Geological Oceanography	R/E	M	M			M	M					M			P	
MARE 466 – Phytoplankton	E	P	P	P	M	M	M	M	M	P	M	M	M	P	P	P
CAPSTONE MARE 470/ 471 – Senior Thesis Research & Report	R/E	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
CAPSTONE MARE 480 – Senior Internship	R/E	M	M	M	M	M	M				M	M	M	M	M	M
MARE 484/L – Biology of Fishes	E	M	M	M	M	M	M	M	M	M	M	M	M	M	P	
MARE 488 – Kū'ula Integrated Science	E		M	P	P	P	P	P	P	P	P	P	P	P	P	
MARE 490/L – Sea Turtle Cons. & Ecology & Lab	E	P	M	P	P	M	M					M	M			

MARE 495 - Senior Seminar	R/E	M	M				M					M			
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Rubric for Senior Papers (Capstone)

Scale	Written Presentation of Research SLO 7 & 13	Visual Presentation SLO 10	Documentation of Sources; Quality of Sources SLO 5	Prose; Spelling and Grammar GE Written Communication
Mastery	<ul style="list-style-type: none"> Hypothesis is sound and has led to an insightful experiment that yields new information. <i>Thoroughly</i> but <i>concisely</i> presents methods, results, & discussion in a well-organized manner Thorough discussion of results within the broader context of published results. Tables & figures properly formatted for journal. 	<ul style="list-style-type: none"> Visually appealing; elements are well spaced and not cluttered; colors and characters enhance readability Uses font size & variation which facilitate the organization, readability, and presentation of the research Graphics (graphs, charts) are engaging and enhance the text Content is arranged in an engaging and organized manner; reader can easily follow the flow of text 	Citation of sources is complete and accurate	Prose is academic and without any errors in syntax or spelling
Competent	<ul style="list-style-type: none"> Hypothesis clearly outlines the overall experiment Adequately presents methods, results, & conclusions in a relatively organized manner Discussion limited in scope or lacking appropriate sources. Minor errors in formatting of tables & figures 	<ul style="list-style-type: none"> Visual presentation is adequate; colors and patterns not fully utilized to add to presentation Uses font size & variation but may not be well placed or planned for optimal effect Graphics (graphs, charts) are minimally used Content is arranged in a somewhat organized manner 	Cites sources but may include a few minor errors	Prose is mainly academic but may contains a few errors, awkward phrases, or strange word choice
Beginning	<ul style="list-style-type: none"> Hypothesis may not have been well-thought out and as a result leads to problems with data or results Methods, Results, &/or discussion are either not well organized or are missing Major errors in formatting or missing tables & figures 	<ul style="list-style-type: none"> The overall poster is not appealing, cluttered, and may show a sloppy/rushed finish Presentation is hard to read and may be hard to follow due to poor organization of materials/text Graphics may be missing, inaccurate, and/or irrelevant 	Sources are missing and/or citation format is completely erroneous	Excessive spelling and grammatical errors