

University of Hawaii Maui College BIOL 331 - Marine Mammal Biology

1. Course Alpha. Please click on the ? to the right for help.

BIOL

2. Course Number. Please click on the ? to the right for help.

331

3. Course Title/Catalog Title. Please click on the ? to the right for help.

Marine Mammal Biology

4. Number of Credits. Please click on the ? to the right for help.

3

5. Contact Hours/Type. Please click on the ? to the right for help.

- Hour lecture (3)

6. Course Description. Please click on the ? to the right for help.

Provides an overview of marine mammal science, significance and roles of marine mammals in their ecosystems, and marine conservation issues. Covers current research topics in marine mammal science.

7. Pre-Requisites. Please click on the ? to the right for help.

MATH 115 and either BIOL 171 or ZOOL 200, both all with grade C or better, or consent.

8. Co-requisites.

9. Recommended Preparation.

10. Is this a cross-listed course? Please click on the ? to the right for help.

NO

11. Reason for Proposal. Why is this course being proposed or modified? This question requires specific information as part of the explanation. Please click on the ? to the right for help.

Create a New Course

There is a need to offer more upper-division natural science courses particularly for the Sustainable Sciences Management degree program. Many of the native marine vertebrates in Hawai'i, including the mammals, are endangered species that require extensive management policies that are based on scientific evidence. UHMC students have indicated genuine interest in natural resources management at the service-learning, internship, and career levels. This course offers an excellent opportunity to provide a solid academic background in marine mammal biology with scientific problem-solving challenges with extensive practice in critical thinking.

12. Effective Semester and Year. For new or modified courses, the effective year is one year from the semester proposed. For example, if proposed in Spring 2012, the effective semester is Spring 2013. Please click on the ? to the right for help.

Spring 2015

13. Grading Method. What grading methods may be used for this course? Please click on the ? to the right for help.

- Standard (Letter,Cr/NCr,Audit) (0)

14. Is this course repeatable for credit? How often can this course be counted toward a degree or certificate? Please click on the ? to the right for help.

NO

15. Course Student Learning Outcomes (SLOs). DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE LEARNING OUTCOMES" and enter in that screen. Please click on the ? to the right for help.

Course SLO /Competency	critique, discuss, and evaluate peer-reviewed scientific research papers related to current marine mammal reserach	collect, analyze, and intepret scientific data related to marine mammals	design and carry out an experiment to test a hypothesis including stating the question and problem, outlining materials and procedures, collecting and analyzing data
demonstrate knowledge of marine mammal biology	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
explain the role and significance of marine mammals in their ecosystems	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
conduct basic observations and studies of marine mammals in their natural environment using quantitative observations and demonstrate inquiry guided by observation/experiment and reasoning/mathematics..	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
involve knowledge and theories relating to processes in the biological sciences and issues of design, testing, and measurement and demonstrate the strengths and limitations of the scientific process;	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Course SLO/PSLO	Examine the features and functions of multiple systems and how they are interconnected, and explains how one system can be optimized without degrading other systems or depleting natural resources.	Investigate, discover, and summarize federal, state, local, and industry codes, standards, laws, regulations, and guidelines.	Assess the feasibility of investing in sustainability measures using simple payback, return on investment, and life cycle costing techniques.	Describe the unique sustainability challenges faced by island communities.	Identify, outline, and illustrate the fundamentals of existing and emerging technologies in energy production, distribution, and management; water supply; wastewater treatment; and waste management; their applications, processes, and requirements.	Appraise, evaluate, summarize, and explain the economic, social, cultural, political, and scientific features that make a system, process, practice, or business sustainable and consolidate that information into a sustainability profile.	Propose and justify creative solutions to sustainability challenges that are scientifically sound.	Demonstrate skills related to managing sustainability projects including defining scope, selecting achievable goals, evaluating ethical implications, working with diverse teams, making presentations, and preparing reports.
demonstrate knowledge of marine mammal biology	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
explain the role and significance of marine mammals in their ecosystems	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
conduct basic observations and studies of marine mammals in their natural environment using quantitative observations and demonstrate inquiry guided by observation/experiment and reasoning/mathematics..	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
involve knowledge and theories relating to processes in the biological sciences and issues of design,	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

testing, and measurement and demonstrate the strengths and limitations of the scientific process;									
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16. **Course Competencies. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE COMPETENCIES/ISSUES/SKILLS" and enter text in that screen. Course competencies are smaller, simpler tasks that connect to and facilitate the SLOs.**

Competency
critique, discuss, and evaluate peer-reviewed scientific research papers related to current marine mammal reserach
collect, analyze, and intepret scientific data related to marine mammals
design and carry out an experiment to test a hypothesis including stating the question and problem, outlining materials and procedures, collecting and analyzing data

17. **Recommended Course Content and Timeline. The course content facilitates the course competencies. Course content may be organized by weeks, units, topics or the like.**

- 1-2 Weeks: Introduction to Marine Mammals (Pinnipeds, Cetaceans, Sirenians)
- 1-2 Weeks: Cladistics, Evolution and Systematics
- 1-2 Weeks: Cetaceans of Hawaii
- 1-2 Weeks: Energetics, Respiration and Diving Physiology
- 1-2 Weeks: Foraging Strategies
- 1-2 Weeks: Reproduction: Strategies, Structures and Patterns
- 1-2 Weeks: Sensory and Sound, Acoustic Communication
- 1-2 Weeks: Population Structure and Dynamics
- 1-2 Weeks: Research Technology
- 1-2 Weeks: Marine Mammals & Culture
- 1-16 Weeks: Sustainability, Management, and Conservation

18. **Program Learning Outcomes. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "PLOs" and enter text in that screen. Program Student Learning Outcomes (PLOs) supported by this course. If you are not a "program" use the Liberal Arts PLOs, view them by clicking on ? icon to the right.**

Program SLO
Examine the features and functions of multiple systems and how they are interconnected, and explains how one system can be optimized without degrading other systems or depleting natural resources.
Investigate, discover, and summarize federal, state, local, and industry codes, standards, laws, regulations, and guidelines.
Assess the feasibility of investing in sustainability measures using simple payback, return on investment, and life cycle costing techniques.
Describe the unique sustainability challenges faced by island communities.
Identify, outline, and illustrate the fundamentals of existing and emerging technologies in energy production, distribution, and management; water supply; wastewater treatment; and waste management; their applications, processes, and requirements.
Appraise, evaluate, summarize, and explain the economic, social, cultural, political, and scientific features that make a system, process, practice, or business sustainable and consolidate that information into a sustainability profile.
Propose and justify creative solutions to sustainability challenges that are scientifically sound.
Demonstrate skills related to managing sustainability projects including defining scope, selecting achievable goals, evaluating ethical implications, working with diverse teams, making presentations, and preparing reports.

19. **College-wide Academic Student Learning Outcomes (CASLOs). FIRST, fill out the CASLO grid located in the UHMC tab above. Click on the HELP icon for tips on determining support for the CASLOs and indicate your choices below by clicking on the box in front of each supported CASLO. NOTE: Our campus does not use the Preparatory Level, Level 1 and Level 2 designations in the chart below.**

<input type="checkbox"/>	Creativity - Able to express originality through a variety of forms.
<input checked="" type="checkbox"/>	Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems. <input checked="" type="checkbox"/> Preparatory Level
<input checked="" type="checkbox"/>	Information Retrieval and Technologv - Access, evaluate, and utilize information effectively, ethically, and

<input type="checkbox"/>	responsibly. <input checked="" type="checkbox"/> Preparatory Level
<input checked="" type="checkbox"/>	Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes. <input checked="" type="checkbox"/> Preparatory Level
<input checked="" type="checkbox"/>	Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately. <input checked="" type="checkbox"/> Preparatory Level
<input checked="" type="checkbox"/>	Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes. <input checked="" type="checkbox"/> Preparatory Level

GenED SLO
Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems.
Information Retrieval and Technology - Access, evaluate, and utilize information effectively, ethically, and responsibly.
Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.
Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes.

20. Linking. CLICK ON CHAIN LINK ICON IN UPPER RIGHT HAND CORNER TO BEGIN LINKING. Please click on the ? to the right for help.

21. Method(s) of delivery appropriate for this course. Please click on the ? to the right for help.

- Cable TV (0)
- Classroom/Lab (0)
- HITS/Interactive TV (0)
- Hybrid (0)
- Online (0)

Lab sessions must be conducted in the laboratory classroom or in the field. Lectures may be transmitted online, cable, polycom, or HITS/Interactive TV.

22. Text and Materials, Reference Materials, and Auxiliary Materials. Please click on the ? to the right for help.

- Berta, A., J. L. Sumich and K. Kovacs. Marine Mammals: Evolutionary Biology. 2006.
- Darling, Jim. Hawaii's Humpback Whales, Unveiling the Mysteries. 2009. Granville Island Publishing, 2009, 978-1-894694-59-9.
- Selected journal articles (Marine Mammal Science, Aquatic Mammals, Conservation Biology, Nature).
- Pechenik, J. A.. A Short Guide to Writing About Biology. 8th. 2007.

23. Maximum enrollment. Please click on the ? to the right for help.

30

24. Particular room type requirement. Is this course restricted to particular room type? Please click on the ? to the right for help.

NO

25. Special scheduling considerations. Are there special scheduling considerations for this course? Please click on the ? to the right for help.

NO

26. Are special or additional resources needed for this course? Please click on the ? to the right for help.

26. Are special or additional resources needed for this course? Please click on the ? to the right for help.

NO

27. Does this course require special fees to be paid for by students? Please click on the ? to the right for help.

NO

28. Does this course change the number of required credit hours in a degree or certificate? Please click on the ? to the right for help.

NO

29. Course designation(s) for the Liberal Arts A.A. degree and/or for the college's other associate degrees. Please click on the ? to the right for help.

Degree	Program	Category
Associate in Arts:	Liberal Arts	DB - Biological LE - Elective
AS:		NS - Natural Science
AAS:	ANY	NS - Natural Science
BAS:	ANY	NS - Natural Science
Developmental/ Remedial:		

AS degrees - ANY EXCEPT ECET

30. Course designation(s) for other colleges in the UH system.

BIOL 331 AT MANOA & MARE 390 AT UH HILO. DB

31. Indicate the year and page # of UHMC catalog referred to. For new or modified courses, please indicate the catalog pages that need to be modified and provide a sheet outlining those changes.

2013-14

pages 16 or 17, SSM degree electives
pages 100, New course description in Biology alpha

32. College-wide Academic Student Learner Outcomes (CASLOs). Please click on the HELP icon for more information.

Standard 1 - Written Communication Write effectively to convey ideas that meet the needs of specific audiences and purposes.		
Outcome 1.1 - Use writing to discover and articulate ideas.		2
Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.		2
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.		1
Outcome 1.4 - Gather information and document sources appropriately.		2
Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.		3
Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.		1
Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.		1
Outcome 1.8 - Demonstrate proficiency in revision and editing.		1

Outcome 1.9 - Develop a personal voice in written communication.	0
Standard 2 - Quantitative Reasoning Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.	
Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.	3
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.	2
Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.	1
Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.	2
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.	2
Outcome 2.6 - Assess the validity of statistical conclusions.	3
Standard 3 - Information Retrieval and Technology. Access, evaluate, and utilize information effectively, ethically, and responsibly.	
Outcome 3.1 - Use print and electronic information technology ethically and responsibly.	3
Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.	2
Outcome 3.3 - Recognize, identify, and define an information need.	3
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.	3
Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.	2
Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.	1
Standard 4 - Oral Communication Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.	
Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.	2
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.	2
Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.	1
Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.	1
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.	2
Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.	1
Standard 5 - Critical Thinking Apply critical thinking skills to effectively address the challenges and solve problems.	
Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.	3
Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.	3
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.	3
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.	3
Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.	3
Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.	2
Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.	3

Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.		2
Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.		2
Outcome 5.9 - Reflect upon and evaluate their thought processes, value system, and world views in comparison to those of others.		2
Standard 6 - Creativity Able to express originality through a variety of forms.		
Outcome 6.1: Generate responses to problems and challenges through intuition and non-linear thinking.		0
Outcome 6.2: Explore diverse approaches to solving a problem or addressing a challenge.		1
Outcome 6.3: Sustain engagement in activities without a preconceived purpose.		0
Outcome 6.4: Apply creative principles to discover and express new ideas.		1
Outcome 6.5: Demonstrate the ability to trust and follow one's instincts in the absence of external direction		0
Outcome 6.6: Build upon or adapt the ideas of others to create novel expressions or new solutions.		1

33. Additional Information

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**UNIVERSITY OF HAWAII MAUI COLLEGE
ASSOCIATE IN ARTS DEGREE
REVIEW OF COURSES FOR DIVERSIFICATION REQUIREMENTS**

Any UH course with a diversification or equivalent designation that transfers to another UH campus will be accepted with the sending campus' designation. At each participating UH campus, the diversification designation is consistent with the hallmarks described below. Courses are approved through a campus level process and reviewed at least every five years to ensure that the course continues to meet the hallmarks.

SUBJECT ALPHA: BIOL

COURSE NUMBER: 331

If the course is cross-listed, please provide the cross-listing: Subject _____ Course # _____

COURSE TITLE: Marine Mammal Biology

UH MANOA DIVERSIFICATION CATEGORY: DB

UHMC RECOMMENDED CATEGORY: DB

Is the course outline, on file with the UHMC Curriculum Committee, consistent with the stated Hallmarks? Yes No

If "No" and you wish to submit changes to correspond with the Hallmarks, attach a University of Hawaii Maui College Curriculum Action Request (CAR) (Form 4-93) with new course outline.

OR

Recommend course be changed to another sub-category: _____

OR

Recommend course be used only as general elective

Ann Coopersmith
Instructor's Printed Name

Ann Coopersmith 21 April 2014
Instructor's Signature Date

2/2010

HALLMARKS: