

Marine Mammal Biology
COA 443/543 and COA 443L/543L
Summer I 2023
Group discussions meet at 1PM Central Time

Contacting Your Instructor(s)

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Virtual

Contact for an appointment.

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Course Description and Objectives

This course will cover the biology of marine mammals (cetaceans, pinnipeds, sirenians, sea otters, and polar bears). Topics will cover classification, evolutionary history, anatomy, physiology, behavior, management, conservation, and toxicology (as it pertains to marine mammals).

Specific Learning Outcomes

By the end of this course students will:

Be able to identify and describe differing types of marine mammals through physical characteristics (including bones) and life history. Be able to describe marine mammal evolutionary history. Be able to describe the taxonomy of marine mammals. Be able to identify marine mammals at sea using a field guide. Be able to define and describe marine mammal physiology, behavior, reproduction, and foraging techniques. Be able to use photos of cetaceans for use in photo ID catalogues. Understand field methods and describe rational for common field techniques. Understand past and current marine mammal exploitation worldwide. Be able to discuss marine mammal policy at both national and international levels. Be able to define unusual mortality events and describe the rehabilitation process. Be able to interpret toxicological data from marine mammal cellular dosing studies. Be able to read and interpret a liquid chromatography mass spectrometry chromatogram depicting cetacean hormones. Describe toxicological threats to marine mammals.

Course Materials

Marine Mammals Evolutionary Biology, 3rd ed. 2015, Berta, Sumich & Kovacs, Academic Press/Elsevier, eBook ISBN: 9780123972576

Hardcover ISBN: 9780123970022

Whales Dolphins and Other Marine Mammals of the World [Princeton Field Guides] 2006, Shrihai & Jarrett, Princeton University Press, ISBN-10 : 0691127573 ISBN-13 : 978-0691127576

Marine Mammal Ecotoxicology 1st edition, 2018, Maria Cristina Fossi Cristina Panti, Academic Press, Paperback ISBN: 9780128121443 eBook ISBN: 9780128122501

Course Requirements

Students are expected to attend all lectures and participate fully in class discussions, presentations, homework, exams, and laboratory projects.

Research Paper: The paper should be in APA format, double spaced, and not exceed 10 pages (excluding references). References should be included as should in text citations. Please reference only reputable sources. If you are unsure about a source, ask your instructor. The paper should include a history of the topic chosen before narrowing down to a specific species and question the student has. The student should back up his or her question with previous studies and propose preliminary research including a brief section of methodology to be used to answer that question. The paper is due June 28th, 2023.

Student Presentations: Students will create a 3-5 slide power point presentation where they present on photo identification of a species of their choice. They should include the identifying marks of the individuals, the populations currently studied, drawbacks to the method used, and any outcomes from the photo ID studies. This is separate from the photo ID lab! Presentations should not exceed 10 minutes in length. Be sure to use citations. Presentations will be given June 9th, 2023, during class.

Exams: There are two midterms and one final. Midterm 1 will test material between May 30th and June 13th. Midterm 2 will test material between June 14th and June 19th. The final will test material learned throughout the entire course. Live pre-exam discussion groups will be held the day before the exam.

Labs: There are four labs throughout the course. They will involve lectures, activities, and problem solving. Lab work is due three days after the lab is given.

Participation: Live sections last about an hour and a half most days but can go up to four hours during exam reviews if needed. Please plan accordingly. You will be required to participate in the discussions and come up with discussion topics.

Course Communication

Students can meet with the instructor by scheduling an appointment. Emails will be responded to within 24 hours on weekdays. Tutoring is available from the instructor if needed.

Course Workload Statement

Students are expected to invest considerable time outside of class in learning the material for this course. The expectation of the University of Southern Mississippi is that each week students should spend approximately 2-3 hours outside of class for every hour in class working on reading, assignments, studying, and other work for the course. For online classes, the average amount spent on a three-credit-course is roughly ten hours per week, including all assignments and interactions.

We realize that most students work and have family or other obligations. Time management is thus critical for student success. All students should assess their personal circumstances and talk with their advisors about the appropriate number of credit hours to take each term, keeping in mind that 30 credit hours each year are needed to graduate in four years. Resources for academic support can be found at our Advisement Center's [Resources page](#) or at the virtual [Student Success Library](#) in our Center for Student Success.

Grading Policies and Calculation

A list of possible grades at the University can be found in the Bulletin (<http://catalog.usm.edu>). Note that students will receive an "interim grade" at the seven-week point to give them an indication of their performance *at that point* in the semester.

Students may drop a course with no penalty in the first week of the semester. If students wish to leave a course with a grade of "W" (for "withdrawal"), they may request to do so before the 50th day (specific dates can be found here: <https://www.usm.edu/registrar/calendars>). Important note: Students who receive a grade of W **do not receive any money back** and that grade is permanently included on their transcripts.

Students should be aware that "Incompletes" can only be assigned in cases of "extraordinary circumstances" beyond the student's control.

Participation: 100 points possible 10% of grade

Exams: 300 points possible 30% of grade

Research Paper: 200 points possible 20% of grade

Labs: 200 points possible 20% of grade

Presentation: 200 points possible 20% of grade

Speaking and Writing Centers

The **Writing Center** and the **Speaking Center** are friendly spaces that provide individualized feedback and support to help Southern Miss students succeed with writing and speaking assignments for any class. The Centers offer one-to-one consultations for any stage of the process, including brainstorming, creating an outline, revising, learning editing strategies, and developing presentation skills. In Spring 2021, all Writing Center appointments are online only. The Speaking Center has online appointments, virtual drop-in hours, and limited in-person availability for the Spring 2021 semester. To make an appointment, visit usm.mywconline.com and create an account with your USM email address. Detailed instructions for making an appointment can be found at usm.edu/writing-center. Contact the Writing Center by email at writingcenter@usm.edu or by phone at (601) 266-4821. The Speaking Center can be reached at speakingcenter@usm.edu or (601) 266-4965.

Copyright statement

My lectures and course materials, including PowerPoint presentations, tests, outlines, syllabus, handouts, recordings of my lectures, and similar materials, are protected by copyright. That means that I am the exclusive owner of those materials I create, and no one but me can edit them, give them to others, post them anywhere online, or copy them to distribute in any way. You may take notes and make copies of course materials for your own personal use, and you and other students in the class may share notes and materials when studying. Any other sharing of lecture notes or any course materials cannot be done unless you have my permission in writing, whether you are paid for the materials or not. Similarly, I will not share anything you submit to me unless I have your written permission. If you upload your notes or any materials from this class to any website or give them to anyone, this act is a violation of copyright and is considered academic misconduct. If you do that, you will be subject to the penalties outlined in the University's Academic Integrity Policy. If you have any questions at all about copyright or academic integrity, please let me know.

Academic Integrity Statement

All students at the University of Southern Mississippi are expected to demonstrate the highest levels of academic integrity in all that they do. Forms of academic dishonesty include (but are not limited to):

- Cheating (including copying from others' work)
- Plagiarism (representing another person's words or ideas as your own; failure to properly cite the source of your information, argument, or concepts)
- Falsification of documents
- Disclosure of test or other assignment content to another student
- Submission of the same paper or other assignment to more than one class without the explicit approval of all faculty members' involved
- Unauthorized academic collaboration with others
- Conspiracy to engage in academic misconduct

Engaging in any of these behaviors or supporting others who do so will result in academic penalties and/or other sanctions. If a faculty member determines that a student has violated our Academic Integrity Policy, sanctions ranging from resubmission of work to course failure may occur, including the possibility of receiving a grade of "XF" for the course, which will be on the student's transcript with the notation "Failure due to academic misconduct." For more details, please see the University's Academic Integrity Policy: <https://www.usm.edu/institutional-policies/policy-acaf-pro-012> Note that repeated acts of academic misconduct will lead to expulsion from the University.

Resources for Students with Disabilities

If a student believes that they have a disability which is covered by the Americans with Disabilities Act (ADA) and makes them eligible to receive classroom or housing accommodations, they should contact the Office for Disability Accommodations (ODA) for information regarding the registration process. Disabilities covered by the ADA may include but are not limited to ADHD, learning disabilities, psychiatric disabilities, physical disabilities, chronic health disorders, temporary illnesses or injuries and pregnancies. Students should contact ODA if they are not certain whether their documented medical condition qualifies for ODA services. Students are only required to disclose their disability to the Office for Disability Accommodations. All information submitted to ODA by the student is held with strict confidentiality.

Contact information:

The University of Southern Mississippi
Office for Disability Accommodations
118 College Drive # 8586
Hattiesburg, MS 39406-0001

Voice Telephone: 601.266.5024 or 228.214.3302 Fax: 601.266.6035

Individuals with hearing impairments should contact ODA using the Mississippi Relay Service at 1.800.582.2233 (TTY) or email ODA at oda@usm.edu.

Food Insecurity and Student Homelessness Statement

The University of Southern Mississippi recognizes that students and staff members may experience challenges beyond their control that impact their ability to take care of their essential needs, such as having food or a safe place to sleep. If you find yourself in need of food or shelter, please consider contacting the Eagle's Nest Food Pantry on the Hattiesburg campus at 601-266-4025 or eaglesnest@usm.edu. All students, faculty, and staff are welcome to come to the Eagle's Nest Food Pantry and utilize the available resources free of charge.

Mental Well-Being Statement

USM recognizes that students sometimes experience challenges that make learning difficult. If you find that life stressors such as anxiety, depression, relationship problems, difficulty concentrating, alcohol/drug problems, or other stressful experiences are interfering with your academic or personal success, consider contacting Student Counseling Services on campus at 601-266-4829. More information is also available at <https://www.usm.edu/student-counseling-services>. All students are eligible for free, confidential individual or group counseling services. *In the event of emergency, please call 911 or contact the counselor on call at 601-606-HELP (4357).*

Nondiscrimination Statement:

The University of Southern Mississippi offers to all persons equal access to educational, programmatic and employment opportunities without regard to age, sex, sexual orientation, disability, pregnancy, gender identity, genetic information, religion, race, color, national origin, and/or veteran status pursuant to applicable state and federal law.

Confidentiality and Mandatory Reporting

As an instructor, one of my responsibilities is to help create and maintain a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a faculty member. I am required to share information regarding sexual misconduct or information about a crime that may have occurred on USM's campus with certain University officials responsible for the investigation and remediation of sexual misconduct. The information will remain private and will only be shared with those officials necessary to resolve the matter. If you would like to speak in confidence, resources available to students include Confidential Advisors with the Shafer Center for Crisis Intervention, the Counseling Center, Student Health Services, and Clergy. More information on these resources and University Policies is available at <https://www.usm.edu/sexual-misconduct>.

Class Schedule

<i>Date</i>	<i>Topic</i>	<i>What should be done before the next class</i>	<i>Assignments due or other important reminders</i>
5/30	Introduction to marine mammals	Chapters 1 and 2 of Marine Mammals Evolutionary Biology	
5/31	Marine mammal evolution	Chapters 3 and 6 of Marine Mammals Evolutionary Biology	
6/1	Systematics	Chapters 4, and 5 of Marine Mammals Evolutionary Biology	
6/2	Field: Species Identification	Whales Dolphins and Other Marine Mammals of the World (Use to identify species)	
6/5	Thermoregulation	Chapter 9 Marine Mammals Evolutionary Biology	
6/6	Energetics and Diving	Chapter 10 Marine Mammals Evolutionary Biology	
6/7	Field: Photo ID	Whales Dolphins and Other Marine Mammals of the World (Use to identify species)	Lab 1 due
6/8	Field Methods	Choose topic for research paper. Topics include: Acoustics, census, mark recapture, behavioral analysis, health screening, age estimation, energetics, diet, telemetry, social systems, and toxicology.	
6/9	Student Presentations on Identification of Species and Photo ID		Student presentations due
6/12	Acoustics		Lab 2 due
6/13	Midterm 1		Exam
6/14	Echolocation, Eyesight, Hearing, and Tactile Senses	Chapters 7 and 11 of Marine Mammals Evolutionary Biology	
6/15	Foraging	Chapter 12 of Marine Mammals Evolutionary Biology	
6/16	Locomotion and Reproduction	Chapter 7 and 13 of Marine Mammals Evolutionary Biology	
6/19	Midterm 2		Exam

6/20	Field: Bones		
6/21	Field: Analytical and Molecular Toxicology	Chapters 4 and 5 of Marine Mammal Ecotoxicology	Research paper due
6/22	Marine Mammal Toxicology	Chapters 3 and 6 of Marine Mammal Ecotoxicology	
6/23	Exploitation and Conservation	Chapter 15 of Marine Mammals Evolutionary Biology	Lab 3 due
6/28	Final Exam		Exam, lab 4, and research paper due