

CATALOG INFORMATION

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Dept & Nbr: BIO 243 Title: BIO OF MARINE MAMMALS

Full Title: Biology of Marine Mammals

Units	Course Hours	Per Week	Nbr of Weeks	Course Hours	Total
Max: 3.0	Lecture	3.0	17	Lecture	51.0
Min: 3.0	Lab	0.0		Lab	0.0
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total	3.0		Contact Total	51.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Title 5 Category: 01 AA Degree Applic  
Grading: GC Credit course for grade or CR/NC  
Repeatability: 00 No repeatability allowed or defined  
Also listed as:

CATALOG DESCRIPTION:

Introduction to the biology, ecology, behavior, natural history and diversity of marine mammals.

PREREQUISITES:

COREQUISITES:

RECOMMENDED PREPARATION:

No advisories.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Introduction to the biology, ecology, behavior, natural history, and diversity of marine mammals including whales, seals, sea lions, and sea otters. (Grade or CR/NC)  
Transfer Credit: CSU; UC.

ARTICULATION and CERTIFICATE INFORMATION

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ASSOCIATE DEGREE:	Effective: FALL	2004	Inactive:
Area: A	NATURAL SCIENCES		
CSU GE:	Effective: FALL	2004	Inactive:
Transfer area: B2	LIFE SCIENCE		
IGETC:	Effective:		Inactive:
Transfer area:			

CSU TRANSFER: TRANSFERABLE Effective: FALL 2004 Inactive:

UC TRANSFER: TRANSFERABLE Effective: FALL 2004 Inactive:

CAN:

CERTIFICATE APPLICABLE: N NOT CERTIFICATE/MAJOR APPLICABLE

#### APPROVAL AND DATES

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Version 01 Submitted by: ALAN WEST Date: 10/14/2003  
 Department approved: Date:  
 Curriculum approved: 11/14/2003 Version approved: 11/14/2003  
 Prerequisites approved: 11/14/2003 Last reviewed: 11/14/2003  
 Term effective: FALL 2004 Last taught: FALL 2007 Inactive:

#### COURSE CONTENT

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##### OUTCOME AND OBJECTIVES:

1. Identify major groups of marine mammals.
2. Develop an understanding of the specialized marine adaptations of marine mammals.
3. Understand the mechanisms of evolution and speciation for marine mammals.
4. Understand the general chemical, physical and biological characteristics of the marine environment.
5. Develop an understanding of the feeding mechanisms and strategies used by marine mammals.
6. Understand the specialized sensory adaptations of marine mammals.
7. Develop an understanding of the diving adaptations of marine mammals.
8. Understand the specialized reproduction mechanisms used by marine mammals.
9. Understand the ecology and social organization of marine mammals.
10. Understand the behaviors of marine mammals.

##### TOPICS AND SCOPE:

1. Introduction to general mammalian characteristics.
2. Characteristics and Systematics of Marine Mammals.
  - a. Cetacea
  - b. Pinnipedia
  - c. Carnivora
  - d. Sirenia
3. Characteristics of the Marine Environment
  - a. Chemical parameters
    - Nutrients
    - Dissolved gasses
  - b. Physical parameters
    - Density/temperature/salinity
    - Currents and waves
  - c. Biological parameters
    - Productivity
    - Food chains, food webs
    - Trophic relationships
4. Marine mammal evolution and diversity

- a. Origin of marine mammals
  - b. Ancestral marine mammals
  - c. Phylogeny
  - d. Mechanisms of evolution and speciation
5. Survey of Marine Mammals
- a. Cetaceans
    - Taxonomy
    - Feeding mechanisms and strategies
    - Sensory physiology
    - Sound
    - Vision
    - Taste and Smell
    - Diving physiology
    - Marine adaptations
    - Thermoregulation
    - Osmoregulation
    - Morphology including body size
    - Behavior
    - Reproductive Mechanisms
    - Mating
    - Gestation
    - Nursing and Weaning
    - Migration
    - Ecological relationships
    - Social organization
  - b. Pinnipedia
    - Taxonomy
    - Feeding mechanisms and strategies
    - Sensory physiology
    - Sound
    - Vision
    - Taste and Smell
    - Diving physiology
    - Marine adaptations
    - Thermoregulation
    - Osmoregulation
    - Morphology including body size
    - Behavior
    - Reproductive Mechanisms
    - Mating
    - Gestation
    - Nursing and Weaning
    - Migration
    - Ecological relationships
    - Social organization
  - c. Carnivora
    - Taxonomy
    - Feeding mechanisms and strategies
    - Sensory physiology
    - Sound
    - Vision
    - Taste and Smell
    - Diving physiology

- Marine adaptations
  - Thermoregulation
  - Osmoregulation
  - Morphology including body size
- Behavior
- Reproductive Mechanisms
  - Mating
  - Gestation
  - Nursing and Weaning
- Migration
- Ecological relationships
- Social organization
- d. Sirenia
  - Taxonomy
  - Feeding mechanisms and strategies
  - Sensory physiology
    - Sound
    - Vision
    - Taste and Smell
  - Diving physiology
  - Behavior
  - Reproductive Mechanisms
    - Mating
    - Gestation
    - Nursing and Weaning
  - Ecological relationships
  - Social organization
- 6. Conservation and management of marine mammals
  - a. History of exploitation and regulations
  - b. Pollution
  - c. Population Status
    - Limiting factors

#### ASSIGNMENTS:

##### READING ASSIGNMENTS

Students will be required to read and study the assigned chapters in the textbook as well as selected reading from journal articles. Examples of appropriate reading: Science, Nature, and Scientific American.

##### WRITING ASSIGNMENTS:

Students are required to research and write a semester term paper on a current marine mammal topic. In addition, students are required to complete written summaries of assigned scientific literature. Finally, students are required to successfully complete essay exams.

##### OUTSIDE ASSIGNMENTS:

At least six hours of independent work must be completed outside of class each week. This work includes study of lecture discussions, reading assignments from the textbook, reading selected journal articles and writing abstracts, answering questions presented in class and by the textbook, and preparing for major exams.

#### METHOD OF INSTRUCTION:

Lecture, field trips, slide presentations, handouts, reading assignments, and class discussion.

## METHODS OF EVALUATION:

Writing Assignments: Term paper and journal abstracts; Computational or non-computational problem-solving demonstrations: Analysis of material presented during field trips; Skill demonstrations: None; Examinations: multiple choice, objective and essay. The basis for assigning grades in the course: Writing assignments: 20-25%; Problem-solving 5-15%; Objective examinations: 70-90%.

## BASIS FOR GRADING:

The assignment of a grade is based on the level of achievement of the outcomes and objectives of the course outline and is reflected in quantifiable terms in the course syllabus.

## REPRESENTATIVE TEXTBOOKS:

Guide to Marine Mammals of the World, R. Reeves, B. Stewart, P. Clapham, J. Powell, Alfred A. Knopf, Inc. Publishers, 2002.  
Marine Mammal Biology: An Evolutionary Approach, A. Rus Hoelzel (Editor). Blackwell Publishers, 2003.

## RATIONALE

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Students have asked for additional marine science courses.

## RESOURCES REQUIRED

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## MISCELLANEOUS

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Advisory generate desc:	N	NO
Area department:	BIO	BIOLOGICAL SCIENCES
Audit flag:	N	NOT AUDITABLE
Basic skills:	X	NOT BASIC SKILLS
Classification:	A	Liberal Arts and Sciences
Cost level:	00	VALUE NOT FOUND
Disciplines:		BIOLOGICAL SCIENCES
Division:	02	MERIDITH RANDALL
Faculty service areas:		BIOLOGY
Fee:	\$0.00	
In-service:	X	NOT IN-SERVICE
Level below transfer:	X	NOT APPLICABLE
Matric-requiring:	X	Exempt from assessment
Maximum class size:	0	
Maximum wait list:	0	
Method of instruction:	02	LECTURE
Non-credit category:	X	NOT APPLICABLE, CREDIT COURSE
Open entry/exit:	N	Not open entry/exit
Pacs activity:	0401	BIOLOGY GENERAL
Pacs program project:	0000	
Preq/coreq generate desc:	N	NO
Preq/coreq provisional:	N	NO
Preq/coreq reg check:	N	NO PREREQUISITE RULES EXIST
Repeat group id:		
Requires instructor sig:	N	INSTRUCTOR'S SIGNATURE NOT REQUIRED
SAM classification:	E	Non-occupational
Selected/special topic:	N	NOT A SELECTED TOPIC COURSE
Special class:	X	NOT A SPECIAL COURSE
TOP code:	0401.00	BIOLOGY, GENERAL
Workload:	0.0000	