



**Last Date Revised: 24 February 2016**

**I. COURSE NUMBER AND TITLE: Marine Mammalogy OCMB 6340, MEVS 5530**

Days: WE 6:30-9:30pm  
Building & Room: Forman 120

**II. INSTRUCTOR:**

Amy C. Hirons, PhD  
Phone: (954) 262-7972, 262-3620      Email: [hirons@nova.edu](mailto:hirons@nova.edu)  
Office: Forman 114  
Office Hours: WE 12-4pm

**III. COURSE DESCRIPTION:**

This course provides an overview of the evolution, natural history, anatomy, physiology, biomedicine, husbandry, pathology, and conservation of cetaceans, pinnipeds, sirenians, and their allies. Graduate students are required to contribute to classroom lectures through a review of primary literature and presentation on specialized subjects directly related to the taught material. Numerous case-studies are used to illustrate concepts such as aquatic mammal diseases, direct and indirect anthropogenic impacts, and translation from terrestrial to marine ecosystems. Students will have a broad understanding of marine mammals, their role in a variety of ecosystems, and the environmental issues related to their need for conservation.

**IV. COURSE LEARNING OUTCOMES:**

At the conclusion of this course the student will be able to:

1. Describe the taxonomy, evolution, and natural history of the major groups of marine mammals.

2. Describe the anatomical and physiological adaptations for diving, fasting and reproduction in marine mammals.
3. Identify and describe the major families of marine mammals, and provide additional information on the biology, conservation, and management of selected species of marine mammals.
4. Provide an in-depth description of the biology, conservation, and protection of cetacean, pinniped, and sirenian species.
5. Identify the major threats to marine mammals and marine mammal populations worldwide and provide literate discussion in oral and written formats.

These objectives should show the following:

- Students are expected to learn materials by memorization initially followed quickly by development of critical thought through the addition of primary literature sources.
- Students must demonstrate advanced writing skills. Students will be given the opportunity to present drafts of their paper for editorial comments before the due date. Good writing can be achieved through continual reading of scientific literature and practice.
- Students will be shown examples of effective presentations and are expected to increase their skills in formal presentation of complex contents. This is important in the job-market.

\*These are directly related to the Program Learning Outcomes for Marine Biology, Coastal Zone Management and Marine Environmental Science.

## V. REQUIRED TEXTS AND MATERIALS:

Supplemental readings will be provided. The following text is required:

*Marine Mammals: Evolutionary Biology 2<sup>nd</sup> edition*. 2006. Berta, Sumich and Kovacs. Elsevier. ISBN 10: 0-12-088552-2

**Blackboard ACCESS:** You must be able to access the site for this course through Blackboard to view lecture notes as well as read assignments. The address is:

<http://mako.nova.edu/>. You must have a working Nova e-mail account including username and password (same as for checking your e-mail at your NSU account). To make sure that you can view the material at this website try going to the website and logging in. You should see this course listed. If you do not, or have any difficulty doing this, e-mail me, tell me, or contact a computer lab assistant and the University computer help desk (954-262-4357).

## VI. COURSE SCHEDULE AND TOPIC OUTLINE:

Requirements for graduation from the course are: successful passing of a midterm and a final exam, production (written) and presentation (oral) of a research paper, participation in all classes and the field experience.

Week	Date	Lecture Topics
1	11 May (plus extra lecture)	Course outline and literature review; marine mammal taxonomy Biology of cetaceans Biology of pinnipeds; Biology of sirenians/fissipeds
2	18 May (plus extra lecture)	Adaptations Thermoregulation and osmoregulation Sensory systems
3	25 May	No Class
4	1 June	No Class
5	8 June	No Class
6	15 June	Sound production
7	22 June	<b>MIDTERM EXAM</b> Diving physiology
8	29 June	Diet; foraging strategies
9	6 July	Reproduction
10	13 July	Conservation and management issues
11	20 July	Student presentations; papers due
12	as announced	<b>FINAL EXAM</b>

Note: This is a tentative schedule that may be changed. Students will be provided a minimum one week advance notice of any change when possible.

### **Field trips**

Total field trip expenses must be paid to NSU. Download and complete the forms from the Halmos College Department of Marine and Environmental Sciences webpage or from the professor and photocopy inside page of passport and health insurance card; submit them along with your payment to Tracy Villanueva, Enrollment Coordinator, in Mailman Hollywood Building, Room 219 **by 5p FR 13 May 2016**. Check, money order, debit or credit card is acceptable. Students will be required to participate in all field activities. The field trip is **optional**.

Field trip (23-31 July 2016) will be spent in the Pacific Northwest between Seattle, WA and Vancouver, British Columbia, Canada and in the San Juan Islands. Students will be able to

directly view cetaceans, pinnipeds, and fissipeds introduced in OCMB 6340 lecture. Students will also have the opportunity to interact with marine mammals and specialists at academic and research institutions to learn research and conservation techniques. Students will fly roundtrip from Fort Lauderdale to Seattle, WA. Students will travel via ground transportation to various coast habitats and research facilities and observe captive and wild marine mammals. Time will be spent hiking through coastal habitat and traveling by boat in the coastal waters. All air and ground transportation, lodging, and fees for aquaria/mammal tours are included in the trip fee. Students are responsible for their own meals.

**Papers will be submitted through turnitin.com.**

- Papers are due at the beginning of presentations. Students may provide one draft of their paper for editorial comment before the final paper is due at the start of student presentations.
- Students themselves will markedly increase the quality of the course by helping the instructor incorporate newest research findings. Instructor guides students by providing them with several papers. These are by no means exhaustive and students are strongly advised to find more material.
- Students will learn to write a coherent report. The production of the report is in content and length comparable to a thesis proposal and will thus confer important skills.
- Students will practice live-presentation. Structure and quality of talks will be evaluated and all students will learn to ask sound questions. Students should give this class presentation the same weight as they would to a conference talk. Evaluation criteria will be strict, formal, and comparable to a thesis defense.

**Length of presentation:**

The presentation needs to be 15 minutes long plus 5 minutes discussion time. The following will be evaluated:

- 1) Structure of talk
  - a. How does the presented problem complex fit within the flow of the class
  - b. Introduction of problem complex
  - c. Objectives of author why study was performed
  - d. Opportunity seen by student as to what can be learned
- 2) Understanding of problem complex
  - a. What type of data is used?
  - b. What type of method is used?
  - c. Do results of model explain/solve the objective?
  - d. Are the results coherent with, or contradictory to, what was presented in class?
- 3) Understanding of technical aspect
  - a. Can student explain the techniques/equations?
  - b. Can student explain the steps of research execution?

- c. Did the student find new materials or just use what was provided?
- 4) Quality of student presentation
- a. Flow of presentation
  - b. Quality of preparedness (can think of and can answer questions)
  - c. Clear slides/whiteboard presentation

**Length of research paper:**

The research paper should be a minimum of 10 pages plus figures and fully cited following the format of one specific journal. The research paper will be handed in the same day as the talk. The following will be evaluated:

- 1) Structure of paper
  - a. Introduction consisting of three paragraphs
  - b. Presentation of the tested hypothesis (if any)
  - c. Presentation of methods used
  - d.
- 2) Quality of the presentation
  - a. Was new material sourced?
  - b. Are the graphics clear (avoid scans - whenever possible redigitize)?
  - c. Is the language clear and without errors (avoid colloquialisms)?
  - d. Is the formal presentation clear?
  - e. Is the scientific content correct?
  - f. Was the literature correctly interpreted?
  - g. Are citations used and referenced correctly?
  - h. Is plagiarism evident?

Students need to use their best and most formal English, no colloquialisms, as they will be graded on grammar and cleanliness of presentation as much as on content!

**VII. GRADING CRITERIA**

<b>Exams &amp; Assignments</b>	<b>Points</b>
Midterm exam	100 points
Final exam	150 points
Research Paper	100 points
Presentation	100 points
<b>TOTAL</b>	<b>450 points</b>

- 1. **Midterm exam (22% of final grade):** Two exams will cover the topics indicated and will be given during an entire class period. Each exam will consist of approximately 25 questions including a variety of short answer and essay questions.
- 2. **Paper (22% of final grade):** You will write a paper on a current research topic and approach related to marine mammals. You will collect and read literature on the topic and write a 10 page, double spaced, 12 pt font research paper on the topic and include a minimum of eight, peer-reviewed, scientific citations. **The paper will be submitted to turnitin.com.**

3. **Presentation (22% of final grade):** You will give a 15 minute Powerpoint presentation based on the research topic of your paper. Students will be required to peer-review the presentation.
4. **Final Exam (34% of final grade):** The Final Exam will be cumulative and will cover material from the entire course. Emphasis will be placed on material covered in previous exam and presentations. You must attend the exam session to be able to take the final exam.

Do not expect to have any extra credit but take advantage of any opportunities that arise. Your final and current grade can be determined anytime by converting the score of each category into the appropriate percentage for the overall course and adding those percentages together. Final letter grades will be based on the numerical average rounded to the nearest whole number. The grading scale is the following:  $\geq 93\%$  = A, 90-92%=A-, 87-89%=B+, 83-86%=B, 80-82%=B-, 77-79%=C+, 73-76%=C, 70-72%=C-, 67-69%=D+, 63-66%=D, 60-62%=D- and  $<60\%$ =F.

### **VIII. COURSE REQUIREMENTS AND POLICIES:**

- Students are expected to attend all lectures and exams. Absence from class will adversely affect your grade since you will not be present to hand in assignments and you will miss course material. There will be no make-up exams unless exceptional conditions occur. In the case of a truly exceptional condition, PRIOR permission from your professor is required.
- Contact your professor as soon as possible if you have an emergency that is causing you to miss a test, or you may be unable to make up the missed work. Expect to provide documentation of your emergency.
- All assignments are due at the beginning of the class indicated in lecture sessions. LATE ASSIGNMENTS WILL NOT BE ACCEPTED except under approved emergency circumstances.
- I expect you to make clear to me when you don't understand something, preferably by asking questions in class, where other students will also benefit from clarification. Alternatively, come see me before or after class or send me a note via email. You should never feel that a question is too trivial (especially if you have tried to study it on your own for a little while first). If you already understood everything about science, you wouldn't be taking this course.
- A great strategy for success in this course is to attend every class meeting, pay attention during lecture, take careful notes and review your notes to be sure that they are clear and consistent. It's a good idea to rewrite your notes or make flash cards from your notes with the material worded in the form of questions. It is also a good idea to write yourself practice tests using the course material and then take them without looking at your notes.

#### **What You Can Expect of Me:**

My overall goal is to create a comfortable, interactive, and supportive learning environment. In doing this, you should expect me to be well prepared for the lecture sessions, that I am clear about my expectations for you, what the criteria are that I use in assigning grades, and that

everyone in the class is treated with consideration and respect. If you feel that I am not living up to these expectations, please bring it to my attention ASAP; you will not be penalized for helping me become a better teacher. I want to help you be an active learner.

## **IX: UNIVERSITY-WIDE POLICY STATEMENTS**

**A. Academic Misconduct:** Academic misconduct appears in a variety of forms (including plagiarism). It is a violation of NSU academic policy and may be punished in a variety of ways, from failing the assignment and/or the entire course to academic probation, suspension or expulsion. If you have questions about what constitutes academic misconduct before handing in an assignment, see your instructor or the NSU Student Handbook at <http://www.nova.edu/cwis/studentaffairs/forms/ustudenthandbook.pdf>.

**B. ADA Policy:** Nova Southeastern University provides accommodations for students with documented disabilities. If you have a disability for which you believe you require accommodation, please contact Academic Services (<http://www.nova.edu/disabilityservices/>, 954-262-7189).

**C. Last Day to Withdraw:** Due to the compressed nature of this course you will be able to obtain a full refund of your tuition up to **Date Changes per TERM**. There will be no refund after that date. None of the lab fee is refundable; however you will own the airline ticket that was purchased for you. It is your responsibility to formally withdraw by completing the appropriate forms to obtain a refund (<http://www.nova.edu/ocean/coursepolicy.html>). A request for tuition refund must be made in writing at the time of withdrawal. Refunds will be made solely at the option of the university and will be based on the legitimacy of the reason for withdrawal. Should you fail to appropriately withdraw from this course, and then earn a grade below your expectations, I will do what I can to see that the grade is reported on your transcript. I will NOT backdate paperwork so that you can avoid earning a grade lower than you like.

**D. Email Policy:** All email communications between students and faculty must be conducted via NSU email accounts (<http://www.nova.edu/common-lib/policies/emailcomm.policy.html>). This requirement will assist NSU in communicating more effectively and protecting your privacy. Emails sent to faculty from non-NSU accounts will be returned to the sender with instructions to resend the communication from your NSU account. To set up an NSU email account or to get help with an existing account, go to [https://www.nova.edu/sbin/account\\_request](https://www.nova.edu/sbin/account_request). Also, the computer help desk is available to assist you with questions regarding your NSU email account. It can be reached at 954-262-HELP (4357).

**E. Student Course Evaluations:** Student comment and feedback evaluating each college class is an important tool to evaluate program effectiveness. Participation in this process is a responsibility of each student.

### **F. Grading System**

The following system is used to grade academic performance:

<b>GRADE</b>	<b>DESCRIPTION</b>
<b>A</b>	Excellent
<b>B</b>	Satisfactory
<b>C</b>	Marginal Pass
<b>D</b>	Poor
<b>F</b>	Failure
<b>W</b>	Withdrawal: Given after the third class week or termination by the instructor for non-completion of the course by the student.
<b>I</b>	Incomplete: Given when most (80 percent), but not all, work has been completed.
<b>Au</b>	Audit
<b>P</b>	Pass

Professors may use + or – in grading. **However, the grading scale ranges from A to D-, no A+ or F+ are awarded.** A grade of incomplete (I) must be requested from the instructor, have the Associate Dean’s approval, and be accompanied by a **completed contract specifying outstanding course requirements and completion dates.** Completion of the course graded incomplete must occur within one semester (or 3 months) of the end of the course and the incomplete be changed to a different grade. If the course is not completed in 3 months, or the student has not withdrawn and received a W, the incomplete will automatically be converted to a grade of F. Under unusual circumstances students may request a time-extension to complete the course. Such requests must be submitted to, and approved by, the Associate Dean of Academic Programs prior to the end of the 3-month time limit. **There are no exceptions to this rule. Securing the completed and signed incomplete contract forms is the responsibility of the student.**