**Marine Mammal Biology**

**Aquatic Animal Health Program**

**University of Florida College of Veterinary Medicine**

**Course Information**

Semester Spring, Year 2022 (3 credits)

Graduate: VME 6014\_: section \_\_\_\_ (UF students); section \_\_\_\_ (non-UF students)

**General Information**

***Course Coordinator:***

Dr. Iske Larkin, PhD

Office hours: Available daily (8AM – 5PM) via E-Learning web mail or UF email. “Face-to-face” meetings can be arranged, as necessary, via Zoom (available through E-Learning site)

Email: [ivlarkin@ufl.edu](mailto:ivlarkin@ufl.edu)

***Course instructor:***

Dr. Jonathan Cowart, PhD

Office hours: Available daily (8AM – 5PM) via E-Learning web mail or UF email. “Face-to-face” meetings can be arranged, as necessary, via Zoom (available through E-Learning site)

Email: [jrc8462@ufl.edu](mailto:jrc8462@ufl.edu)

***Guest lecturers: TBD***

**Prerequisites**: At least 2 courses beyond basic Biology I & II (BSC2010 & 2011) in the following scientific fields: Physiology (example – PCB4723C), Anatomy (example – ZOO3713C), Ecology (example – PCB4043C), Zoology (examples – ZOO2203C, ZOO4926), Aquatic Sciences (examples – GLY3083C, FAS4932, ZOO4403C, VME4012), or instructor permission.

**Course Description**

**Course Overview**: This is an introductory online course for graduate students designed to provide an introduction to a variety of marine mammal species including cetaceans, sirenians, pinnipeds, mustelids, and ursids. Each module will broadly explore a particular ecological, biological, or physiological theme related to the study of marine mammals, including taxonomy and biodiversity, diving physiology, thermoregulation, foraging ecology, and reproduction as well as the many conservation and management issues faced by different marine mammal species. Each module will consist of multiple lectures, assigned readings, and an assignment and/or quiz.

**Student Learning Outcomes**:By the end of the course, each student will successfully be able to:

* Identify and classify the major taxonomic groups of marine mammals
* Examine the morphological and physiological adaptations evolved by marine mammals and explain their role in a marine mammals’ ability to inhabit an aquatic environment.
* Examine the biological and ecological relationships between marine mammals and the aquatic environments they inhabit.
* Identify the major conservation issues faced by different marine mammal species and evaluate species specific susceptibility to particular threats.

**Course Material**: There are no required textbooks for this course. All quiz questions will come from the information provided in the lectures and assigned readings. However, supplemental information may be necessary to enhance learning of the required material. Below are some *recommendations* for supplemental resources:

1. Encyclopedia of Marine Mammals – Wursig, Thewissen, and Kovacs
2. Marine Mammals: Evolutionary Biology – Berta, Sumich, and Kovacs

**Course Format**: This course is offered entirely in an asynchronous online format and relies primarily on recorded lectures, videos, and assigned readings (either from book chapters or primary scientific literature). Students are expected to work independently through each module as they review each of the recorded lectures and assigned readings and complete assignments. Opportunities for class discussions and group assignments will be available throughout the course. To Access the course, please go to: http://elearning.ufl.edu/ starting \_\_\_\_\_\_\_\_\_, hit the e-Learning in Canvas button and log in with your Gator link username and password. You should see the following link at the top of the page: \_\_\_\_\_\_\_\_\_

**1. Lectures and Assigned Readings:** Each module will contain multiple recorded lectures related to the respective module topic. Online lectures are meant to provide an introduction to and overview of the topic at hand. Assigned readings will include primary scientific literature and/or book chapters. Readings are meant to supplement lecture material in order to maximize learning outcomes for each module.

**2. Question & Answer Sessions**: A 1hr live Zoom Q&A session (accessed through the E-Learning site) will be held on the same weeks as quizzes. Q&A sessions are **NOT** mandatory, but are meant to provide a platform for students to ask questions regarding topics that they are having difficulty understanding or would like further clarification on. Q&A sessions will be recorded and provided within each respective module for students who are unable to attend but would still like to review the material. In addition to the live Q&A sessions, there will be a Q&A discussion board associated with each module where students can post questions regarding topic material. We highly encourage all students to post their questions to the discussion board, even if they plan to attend the live Q&A session. There is no guarantee that all student questions will be answered within the allotted 1hr live session; however, the course coordinator and TA will make an effort to address all questions within the discussion board.

**3. Assignments**: Module assignments are generally assigned once every two weeks and will be due by **Sunday at 11:59PM EST**. Assignments will vary between modules and are meant to help students learn to critically think through and apply the topics from the respective module. An example and detailed rubric will be provided for each module assignment. An example and detailed rubric will be provided for each module assignment. When applicable (meaning not for the website discussion board postings), assignments must be in a MS Office document format (use .doc or .docx for documents, .ppt or .pptx for PowerPoint, etc.). All students should have access to Microsoft Office software for free during the semester, which can be accessed at: <https://it.ufl.edu/services/gatorcloud-microsoft-office-online>. If you have any issues with this, you can contact the campus computer support group (e-mail helpdesk@ufl.edu, or call (352) 392-4357).

**4. Quizzes**: Quizzes are generally assigned once every two weeks (alternates weeks with module assignments) and will be due by **Sunday at 11:59PM EST**. Each quize will cover the topics presented within the lectures and assigned reading materials for the related modules. Quizzes are open book and students will have 60 minutes to complete each quiz. Each quiz will have two attempts with the highest attempt counting as the final quiz grade. *Please note, quiz questions are drawn from a pool of possible questions; therefore, each quiz attempt will not be the same as the previous on*e.

**5. Final Project (semester-long project)**: Over the course of the semester, each student will construct what they believe to be the “perfect” marine mammal species. Students will complete this project by critically assessing the information from each module to successfully apply this knowledge to build a “perfect” species, piece-by-piece. This semester-long project is broken up into 10 different parts spread throughout the semester with each part correlating to a specific module topic. The final project write-up will be due the last week of class. See the detailed “Final Project Instructions” and associated rubric that are posted on the E-Learning site.

**Late Submissions**: Requirements for assignments in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. Students are encouraged to reach out to Dr. Cowart as soon as possible if they have any issue submitting an assignment on time so that a viable solution can be determined. In general, submission of assignments past the scheduled due date/time will automatically receive a 10% reduction per day from the final grade. No late quiz or final project submissions will be accepted without prior approval from Dr. Cowart. For quizzes, submission must be completed at least 10-15 minutes prior to the final due date/time for the system to recognize and process your submission. Failure to do so will result in the system giving you a zero (so please don’t wait until the last minute to take your quizzes!).

All work conducted should be conducted **independently** unless specifically indicated in the assignment directions. Any writing should be your own thoughts or a summary of other reading material. Plagiarism will result in a 0 for the assignment and depending upon the severity of the issue may result in a 0 for the class. TurnItIn is a plagiarism checker and will be used within the course.  Any assignment with a match of more than 15% will not be accepted. Where TurnItIn is used, you will have access to the report.

**Library Support:** Hannah Norton has agreed to provide assistance with accessing the UF library system and conducting literature searches.  She can be reached at [nortonh@ufl.edu](mailto:nortonh@ufl.edu) and she has access to the Canvas/E-Learning class web page.

**MediaSite Lectures:** If you are having trouble accessing the lectures through the MediaSite Link, when prompted, you need your Gator Link User Name and Password and you may need to download Silverlight if it does not automatically prompt you to do so. You may install Silverlight through the following link:

<http://www.microsoft.com/getsilverlight/Get-Started/Install/Default.aspx>.

For the most current information on the computer requirements, please visit this page before the course begins: <https://it.ufl.edu/> and <https://it.ufl.edu/policies/student-computing-requirements/>

**Grades**: Grades are based on successful completion of module assignments, quizzes, and the final project (semester-long).

* Assignments constitute **30%** of the final grade,
* Quizzes constitute **40%** of the final grade,
* Final Project constitutes **30%** of the final grade.

*Grading Scale*

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| --- | --- | --- | --- | --- |
| **A** 94-100 | **A-** 90-93 | **B+** 87-89 | **B** 83-86 | **B-** 80-82 |
| **C+** 77-79 | **C** 73-76 | **C-** 70-72 | **D+** 67-69 | **D** 63-66 |
| **D-** 60-62 | **F** 0-59 |  |  |  |

**Course Schedule**

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| **Module** | **Topic** | **Lectures** | **Assignments** |
| 1 | **Taxonomy & Biodiversity** | Course Introduction (*Cowart*)  Taxonomy of Marine Mammals (*Cowart*) | **Discussion board introduction** |
| **Project Pt. 1**: Select your specie’s taxonomic group |
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| 2 | **Evolution** | Cetaceans  Sirenians  Pinnipeds | **Quiz 1** (Modules 1-2) |
| **Q&A Session** |
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| 3 | **Anatomy / Physiology** | (*Joy Reidenberg*) | **Assignment 1**: Marine Mammal Adaptations |
| **Project Pt. 2**: Select your species’ anatomical/physiological adaptations |
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| 4 | **Thermoregulation** | Integument: Blubber  Integument: Fur  Counter-Current Heat Exchange | **Quiz 2** (Modules 3-4) |
| **Project Pt. 3**: Select the best thermoregulatory characteristics for your marine mammal |
| **Final Project Peer Review 1** |
| **Q&A Session** |
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| 5 | **Diving Physiology** | (*Andreas Fahlman*) -WHOI  (*Randall Davis*) - TAMUG | **Project Pt. 4**: Select the best physiological traits for the depth range your specie’s utilizes |
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| 6 | **Communication / Echolocation** | Echolocation | **Quiz 3** (Modules 5-6) |
| **Q&A Session** |
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| 7 | **Sensory Biology** | Vibrissae  Lateral Line System  Chemosensation | **Assignment 2**: Scientific Poster |
| **Project Pt. 5**: Select how your marine mammal will sense the world around it |
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| 8 | **Foraging Ecology** | Feeding Mechanics | **Quiz 4**: (Modules 7-8) |
| **Project Pt. 6**: Select the foraging strategies that your specie’s will employ |
| **Final Project Peer Review 2** |
| **Q&A Session** |
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| 9 | **Reproduction** | Cetacean Reproduction (*Orbach*)  Manatee Reproduction (*Cowart/Larkin*)  Pinniped Reproduction | **Assignment 3**: Knowledge Blitz |
| **Project Pt. 7**: Select the reproductive strategies and anatomical configurations your specie’s has |
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| 10 | **Health & Disease I** | Unusual Mortality Events  Population Health  Nutrition (*Ardente*) | **Quiz 5** (Modules 9-10) |
| **Q&A Session** |
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| 11 | **Health & Disease II** | Cetacean Virology (*Jacob*)  Sea Otter Health/Disease (*Weisbrod*)  Pinniped Disease *(Deming)* | **Assignment 4:** Mini Grant |
| **Project Pt. 8**: Select the health issues and diseases your species may be most susceptible to |
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| 12 | **Strandings / Necropsy** | Stranding Response   1. Cetacean *(Lovewell/Kincaid/Blackburn)* 2. Pinniped *(Deming)*   Conducting a Necropsy | **Quiz 6** (Modules 11-12) |
| **Q&A Session** |
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| 13 | **Management & Research** | Photo-ID  Research Methods | **Assignment 5**: Research Methods |
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| 14 | **Conservation Issues I** | West African manatee conservation in Cameroon (*Kamla*)  Conservation in developing countries | **Quiz 7** (Modules 13-14) |
| **Project Pt. 9**: Describe the management/conservation issues your specie’s faces. |
| **Final Project Peer Review 3** |
| **Q&A Session** |
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| 15 | **Course Wrap-Up** |  | **Final Project Write-up** |
| **Course Evaluations** |

**UF Counseling Services**

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

**Health and Wellness**

* *U Matter, We Care*: If you or someone you know is in distress, please contact [umatter@ufl.edu,](mailto:umatter@ufl.edu) 352-392-1575, or visit [U Matter, We Care website](https://umatter.ufl.edu/) to refer or report a concern and a team member will reach out to the student in distress.
* *Counseling and Wellness Center*: [Visit the Counseling and Wellness Center website](https://counseling.ufl.edu/) or call 352-392-1575 for information on crisis services as well as non-crisis services.
* *Student Health Care Center*: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](https://shcc.ufl.edu/).
* *University Police Department*: [Visit UF Police Department website](https://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).
* *UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](https://ufhealth.org/emergency-room-trauma-center).

**Academic Resources**

* *E-learning technical support*: Contact the [UF Computing Help Desk](http://helpdesk.ufl.edu/) at 352-392-4357 or via e-mail at [helpdesk@ufl.edu.](mailto:helpdesk@ufl.edu)
* [*Career Connections Center*](https://career.ufl.edu/): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
* [*Library Support*](https://cms.uflib.ufl.edu/ask): Various ways to receive assistance with respect to using the libraries or finding resources.
* [*Teaching Center*](https://teachingcenter.ufl.edu/): Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
* [*Writing Studio*](file:///C:\Users\JC\Desktop\writing.ufl.edu\writing-studio)*:* 2215 Turlington Hall*,* 352-846-1138. Help brainstorming, formatting, and writing papers.
* *Student Complaints On-Campus*: [Visit the Student Honor Code and Student Conduct Code webpage for more information](https://sccr.dso.ufl.edu/policies/student-honor-%20code-student-conduct-code/).
* *On-Line Students Complaints*: [View the Distance Learning Student Complaint Process](https://distance.ufl.edu/getting-help/student-complaint-process/).

**Honesty Policy**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. [Click here to read the Conduct Code](https://sccr.dso.ufl.edu/process/student-conduct-code/). If you have any questions or concerns, please consult with the instructor or Tas in this class.

**Accommodation for Students with Disabilities**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. [Click here to get started with the Disability Resource Center](https://disability.ufl.edu/students/get-started/). It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

**Software Use**

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

**Course Evaluations**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. [Click here for guidance on how to give feedback in a professional and respectful manner](file:///C:\Users\lilyrlewis\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\LU96BFUU\gatorevals.aa.ufl.edu\students\). Students will be notified when the evaluation period opens, and can complete evaluations through: (1) the email they receive from GatorEvals, (2) in their Canvas course menu under GatorEvals, or (3) via [ufl.bluera.com/ufl/.](https://ufl.bluera.com/ufl/) [Summaries of course evaluation results are available to students here](https://gatorevals.aa.ufl.edu/public-results/).