AQUATIC ANIMAL PATHOLOGY & FORENSIC SCIENCE
VME-6574

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Office: Remote, to reach the instructor, please use email. Questions and concerns will be answered by email. Phone calls between instructor and student may be arranged by email at the earliest possible time and day according to the instructor. Do not wait until the due date of an assignment, exam, paper or project to ask for assistance.

Text and materials: All readings will be provided via links in the course modules or in course reserves. Students must familiarize themselves with the library and accessing journal articles needed for class.

Notes:
Students are expected to take extensive notes in this class. This includes lectures by the instructor and during necropsy demonstrations. Notes may be used during the tests, but you must study ahead of the tests and be familiar with the concepts in order to complete the exam during the allotted time. Lecture slides will be available as a PDF file, but you must take notes that accompany the slides.

Course Description:
Students completing this course will have a better understanding of aquatic animal pathology and the types of injuries seen in aquatic animal forensic cases in general. Students will have learned necropsy techniques and subsequent sample analysis, background historical, ecological and conservation information regarding each taxonomic group examined, and related forensic techniques including sampling, handling, and legal concerns. Related case studies will be used to supplement the lessons. Learning objectives will be accomplished through a combination of video, lecture material, readings, demonstrations, writing assignments, and online active discussions.

Course Objectives:
By the end of this course, students should be able to:

- Describe how the environment and the nature of water affect the examination of aquatic organisms in a forensic context.
- Describe frequently-encountered situations that result in injury or death to various aquatic species that may have legal ramifications.

- Recognize injury patterns, trauma and wounds of forensic importance and to document and record them for inclusion in case reports.
- Discern additional pathological changes common to each taxonomic group discussed that may be observed during post-injury or post-mortem examination and to identify the proper samples that need to be obtained for further analysis to explain or refute initial examination findings. Students will learn basic lesion descriptions and understand how to conduct gross postmortem exams.
- Recognize and name the major taxonomic groups discussed in class. Taxonomy is relevant to forensic science.
- To explain the natural history and conservation of each aquatic group and the unique concerns and issues they face for the future.

Weekly topics and graded work:

Week/Module	Topic	Graded work
Introduction	Course Introduction/Expectations Syllabus	Graded Discussion: Introduce yourself
1-Aquatic Systems	Introduction to freshwater and marine systems, the physical properties of water and how this affects organisms Special considerations for freshwater and marine environments, homeostasis, environmental conditions and forensic considerations	Discussion 1
2 – Aquatic Wildlife Forensic Examinations	Basic postmortem techniques, equipment and supplies, risk assessment (physical, chemical and infectious hazards) Describing lesions, samples and checklists, writing the postmortem report	Assignment 1
3 – Amphibians and Fish	Lectures and discussion topic for amphibians and fish. Adaptations and threats (including toxins, trade and illegal catch, habitat loss)	Discussion 2
4 – Freshwater and Marine Fish	Shark necropsy video	***Module 1 Test (weeks 1-4)*** Assignment 2
5 – Marine/Aquatic Reptiles	Lecture and Discussion topic for reptiles Freshwater and marine turtles, crocodilians- adaptations,	Discussion 3

	ecotoxicology (chemical exposure including oil spills), threats (including trade, fishing activities, habitat loss and debris ingestion).	
6 – Marine/Aquatic Reptiles	Sea Turtle necropsy video	Assignment 3
7 – Marine/Aquatic Birds	Lecture and Discussion topic for birds Freshwater and marine dependent birds, adaptations, ecotoxicology (lead, harmful algae, oil spills), threats (including trade, bycatch, illegal hunting, habitat loss)	Discussion 4
8 – Marine/Aquatic Birds	Pelican necropsy video	***Module 2 Test (weeks 5-8)*** ***MIDTERM PAPER DUE***
9 – Freshwater Mammals	Lecture and Discussion topic for Freshwater (semi-aquatic) Mammals Adaptations, ecotoxicology (chemical exposure, oil spills), threats (including trade, illegal hunting, habitat loss)	Discussion 5
10 – Freshwater Mammals	River otter necropsy video	Assignment 5
11 – Marine Mammals	Lecture and Discussion topic for marine mammals (part 1) Sirenians and pinnipeds, polar bears and sea otters - adaptations, toxicology, threats (including trade, illegal hunting, bycatch, habitat loss, vessel strikes)	Discussion 6
12 – Marine Mammals	Manatee necropsy video	Assignment 6
13 – Marine Mammals	Lecture and Discussion for marine mammals (part 2) Cetaceans- adaptations, toxicology, threats (trade, illegal hunting and bycatch, habitat loss, vessel strikes, sonar and blast events)	Discussion 7 ***Module 3 Test (weeks 9-14)***

14 – Marine Mammals	Dolphin necropsy video	***FINAL PROJECT due during finals week***

Grading:
Exams: There will be three module tests with each test encompassing approximately 1/3 of the course material.

Discussion Questions: There will be one discussion questions assigned for each section; each discussion question is worth 10 points. Discussion questions will open on a Monday morning (EST) and be due by 11:59 PM EST the following Sunday. The discussions will remain open for the duration of the semester, but students must post at least one response to the question AND one response to a peer post by the following Sunday to receive credit. Extra credit may be given for thought-provoking, on-going discussions.

Bi-weekly Assignments: There will be one assignment assigned for each section; each assignment is worth 10 points. Assignments will open on a Monday morning (EST) and be due by 11:59 PM EST the following Sunday.

Responses to discussion questions AND biweekly written assignments posted after the due date will be subject to a 2-point deduction for each late day.

Midterm paper and final project: There will be one literature review paper and one final project assigned. The midterm paper assignment will be announced during week 3 and will be due after week 8 (see calendar in CANVAS for ALL dates). The final project will be assigned during week 10 and will due during the FINAL EXAM week. **See due date and time in the calendar and module/weekly announcements. Late submissions of the midterm paper will result in a 10 point reduction for each late day. The final project is due on the date given in the calendar and announcements and cannot be turned in late.**

Graded Item	Amount per Semester	Total Point Value per Item	Total Points for Semester
Tests	3	50	150
Midterm paper	1	80	80
Final project	1	80	80
Weekly Discussions/Assignments	13	10	130
	Total Points	220	440

Students will receive individual feedback on points lost on the assignments, midterm paper and final project. Answers to tests will be available one week after the posted due date. Students can check their progress in the course by viewing their grade records via the course interface.

MAKE-UP EXAMINATIONS WILL NOT BE GIVEN UNLESS ARRANGEMENTS ARE MADE *PRIOR* TO THE EXAM DUE DATE. IN THE EVENT OF AN EMERGENCY AND YOU ARE UNABLE TO TAKE THE EXAM ON OR BEFORE THE DUE DATE, A DOCTOR'S NOTE MUST BE PROVIDED TO ALLOW FOR A LATE EXAM

Grades will be assigned as follows:
100-93.4% A
93.3-90.0% A-
89.9-86.7% B+
86.6-83.4% B
83.3-80.0% B-
79.9-76.7% C+
76.6-73.4% C
73.3-70.0% C-
69.9-66.7% D+
66.6-63.4% D
63.3-60.0% D-
<59.9% and below = E

All students should make themselves familiar with the Academic Polices and Resources available to them.

Use this master link to find information regarding:
https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

- Attendance
- Students with disabilities
- Grading policy
- Evaluations
- UF Honesty Policy
- In-class recording
- Academic Resources
    - IT (TECH support)
    - Careers
    - Library support
    - Academic resources and tutoring
    - Academic complaints
    - Gator Wellness Center