BIOL 3407 – Vertebrate Natural History
Spring 2023

Instructor: Dr. Dan H. Foley III
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Office hours: Monday - Thursday: 10am – 12:00pm
Friday: by appointment

Required Texts: Pough, F. Harvey and Christine M. Janis. 2019. Vertebrate Life, 10th edition. Prentice Hall.

Shubin, Neil. 2009. Your Inner Fish: A Journey Into the 3.5 Billion-year History of the Human Body. Vintage Books.

Course Primary Learning Objectives: Upon successfully completing this course students will have a firm understanding of:

- The role of evolution on Earths life systems, and the interactions of biotic and abiotic factors in the development of ecological communities.
- Use biological instrumentation to solve biological problems in the laboratory.
- The application of *Phylogenetic Systematics* (including fundamental concepts and limitations) and its importance in allowing scientists to develop testable hypothesis about the evolution of vertebrates.
- The difference between non-amniotic and amniotic vertebrates and the constituents and evolutionary history of each.
- The evolutionary history of modern mammals including the evolution of humans.
- The ability to recognize most common vertebrates (fishes, amphibians, reptiles, birds & mammals) found in Texas and have a general understanding of their life histories, distribution, and habitat requirements.

Tentative Lecture Schedule
(*note*: exact date are subject to change, be sure to keep abreast of changes).

Date	Topic	Readings
January 19	Introduction Diversity, Classification & Evolution of Vertebrates	 Chapter 1
January 24	What is a vertebrate	Chapter 2
January 26	Jawless Vertebrates & the Origin of Jawed Vertebrates	Chapter 3
January 31	Living in Water	Chapter 4
February 2	Radiation & Diversification of Chondrichthyes	Chapter 6
February 7	Extant Chondrichthyes	Chapter 7
February 9	**EXAM 1 – Chapters 1, 2, 3, 4, 6 & 7**	
February 14	Radiation & Diversification of Osteichthyes	Chapter 8
February 16	Extant Bony Fishes	Chapter 9
February 21	Origin & Radiation of Tetrapods	Chapter 10
February 23	Extant Amphibians	Chapter 11
February 28	Living on Land **Response Paper Due**	Chapter 12
March 2	**EXAM 2 – Chapters 8, 9, 10, 11 & 12**	
March 7	Synapsids & Sauropsids	Chapter 14
March 9	Ectothermy: A Low-energy Approach to Life	Chapter 15
March 14	*Spring Break-No Classes*	
March 16	*Spring Break-No Classes*	
March 21	Turtles	Chapter 16
March 23	Lepidosaurs	Chapter 17
March 28	Crocodylians	Chapter 18
March 30	Mesozoic Diapsids	Chapter 19
April 4	**Exam 3 – Chapters 14, 15, 16, 17, 18 & 19**	
April 6	Endothermy: A High-energy Approach to Life	Chapter 20
April 11	The Origin & Radiation of Birds	Chapter 21
April 13	Extant Birds	Chapter 22
April 18	Synapsida & the Evolution of Mammals	Chapter 24
April 20	Extant Mammals	Chapter 25
April 25	Primate Evolutions & Emergence of Humans	Chapter 26
April 27	*Make up days*	
May 2	*Make up days*	
May 4	*Make up days*	
May 9	**Exam 4 – Chapters 20, 21, 22, 24, 25 & 26**	

Grade assessment:
There will be **4 lecture examinations** and **2 laboratory examinations** & **1 Response Paper** during this course. Each lecture exam will each be worth 100 points. Each laboratory exam will be worth 100 points. The response paper will be worth 100points. There will be no formal final exam. Therefore, there are a total of 700 possible points during the course of this class

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Exam 4	100 points
Response paper	100 points
Lab exam 1	100 points
Lab exam 2	100 points
Total	700 points

The Response Paper:
You will be required to critically read "*Your Inner Fish: A Journey Into the 3.5 Billion-year History of the Human Body*" by Neil Shubin and write a 3 – 4 page Response Paper to this book. More specific details will be given in class.

Total points	*Percent*	*Letter Grade*
630 – 700	90 – 100%	A
560 – 629	80 – 89%	B
490 – 559	70 – 79%	C
420 – 489	60 – 69%	D
419 or less	< 60%	F

All exams should be considered comprehensive because information in each chapter/unit builds upon previous material. Questions will be drawn from information presented in lecture, contained in the text, and through occasional class notes, handouts or additional assigned readings. Exam questions may consist of a few definitions or vocabulary/concepts, multiple choice questions and short essay questions. No notes, books, cell phones, PDA's, or other materials will be allowed during the exam. I will provide an English dictionary for your use if necessary. If you are and ESL student, please contact me to make arrangements for use of foreign language dictionaries and translators.

Laboratory
The laboratory period will be used to reinforce concepts learned during lecture and used as an opportunity to acquaint students with many of the common vertebrates of Texas.

Laboratory Schedule

Date	Topic
Week 1: Jan. 18-19	Video
Week 2: Jan. 25-26	The Protovertebrates
Week 3: Feb. 1-2	The Cartilaginous Fishes
Week 4: Feb. 8-9	The Boney Fishes
Week 5: Feb. 15-16	Amphibians
Week 6: Feb. 22-23	Reptiles Part 1: Tuatara, Turtles & Crocodilians
Week 7: March 1-2	**Lab Exam 1**
Week 8: March 8-9	Reptiles Part 2: Lizards
Week 9: March 16-16	Spring Break-No Classes
Week 10: March 22-23	Reptiles Part 3: Snakes
Week 11: March 29-30	Birds 1
Week 12: April 5-6	Birds 2
Week 13: April 12-13	Mammals 1
Week 14: April 19-20	Mammals 2 & Early hominoids
Week 15: April 26-27	**Lab Exam 2**

Extra Credit
There will be **NO** opportunities for extra credit, so don't even ask! If you concentrate on the scoring opportunities that are presented, no extra credit will be necessary!

Study Tips:
Everyone has their own unique way of learning. How you study rather than how long you study will have a huge impact on your grade in this course. If you use all the resources available to you and take an active role in the learning process you will likely do much better. Some specific tips are:

- Spend 15 – 20 minutes to skim through each reading assignment before class.
- Review the lecture notes and read the assigned reading
- Do the study questions at the end of each chapter
- Try to draw diagrams from lecture and the book from memory
- Make flash cards or important concepts and terms
- Call up a friend and try to explain what you have learned in class
- ASK QUESTIONS! You are not in this class alone, if you don't understand something, more than likely your classmates also don't understand.

Attendance:
This is an upper division college course. You are an adult, and you paid for this course. I will not be taking roll call. However, material for the exams will come largely from my lectures, so it is in your best interest to come and participate in class.

Disabled Students:
Reasonable accommodations will be provided for students with disabilities. Please meet with me the first week of class to discuss any special needs you may need.

Academic Honesty:
Cheating will not be tolerated. The University expects all students to engage in all academic pursuits in a manner that is above reproach and to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. "Cheating" includes, but is not limited to:

- Copying from another student's test paper, a laboratory report, other report, or computer files, data listings, and/or programs.
- Using, during a test, materials not authorized by the person giving the test.
- Collaborating, without authorization, with another person during an examination or in preparing academic work.
- Knowingly, and without authorization, using, buying, selling, stealing, transporting, soliciting, copying, or possessing, in whole or in part, the contents of an unadministered test.
- Substituting for another student; permitting any other person; or otherwise assisting any other person to substitute for oneself or for another student in the taking of an examination or test or the preparation of academic work to be submitted for academic credit.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
- Purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm. This section does not apply to the typing of the rough and/or final versions of an assignment by a professional typist.

Plagiarism will not be tolerated. "Plagiarism" means the appropriation and the unacknowledged incorporation of another's work or idea into one's own work offered for credit. This includes verbatim written answers by colleagues with whom you might discuss laboratories exercises. Plagiarism also includes copying information from internet resources. To avoid plagiarism, make sure you always use your own words to construct your written answers.