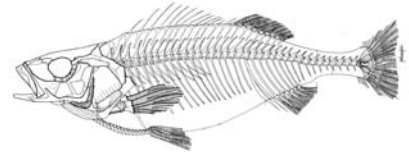




Bio 374 Spring 2006



Time/Location:

Monday and Wednesday from 5:00 pm – 6:15 pm, Loyola 200

Instructor:

Dr. Robert Smith
Assistant Professor of Biology
Loyola 208
Phone: 941-6581
Email: smithr9@scranton.edu

Office Hours:

Monday 3:00 – 4:00 pm, Wednesday 3:00 – 4:00 pm. Additional appointment times are available upon request.

Course description:

Vertebrates are often the most abundant and conspicuous part of our experience of the natural world. Typically, when people are asked to provide an example of a wild animal they name a vertebrate. This lecture course will use a comparative approach to explore the diversity of vertebrates, the characteristics that define each vertebrate taxa, and how those characteristics relate to each group's evolution. Much of the course will be concerned with principles of systematic biology, factors governing vertebrate distribution, methods used by vertebrates to solve environmental problems, inter- and intraspecific interactions, reproduction, life history and the conservation biology of vertebrates. This course fulfills a Population or Organismal Group requirement.

Materials:

Textbook: We are using Pough, F.H, Janis, C. M. and Heiser, John B. 2005. Vertebrate Life, 7th edition. Prentice Hall, New Jersey. ISBN 0-13-145310-6.

Attendance:

There is no strict attendance policy – coming to class is up to you. However, given the intensive nature of a course such as this, I strongly recommend attending all classes.

Student Learning Objectives:

This class will focus on the biology of vertebrates, examining vertebrate form and function within an evolutionary and ecological context. Upon completion of this course, students will/will be able to:

1. Discuss basic evolutionary concepts and principles, including variability, heritability, fitness, natural and sexual selection, evolutionary change, adaptation, microevolution, speciation, macroevolution and adaptive radiation.
2. Understand basic phylogenetic systematics.
3. Describe the phylogenetic relationships among the Phylum Chordata and Subphylum Vertebrata, discuss the characteristics unique to each group and demonstrate an understanding of how those characteristics relate to each group's evolution and current natural history.
4. Understand the evolutionary 'forces' and the selective advantages of the responding adaptations that characterize the different vertebrate lineages.
5. Demonstrate a basic understanding of issues surrounding the conservation and management of vertebrates.

Evaluation Methods:

Student outcome will be assessed via two examinations, 5 brief journal summaries, and a comprehensive final exam. You have the option of writing a synthetic paper on a vertebrate topic acceptable with the instructor.

Exams will cover material presented in class along with textbook readings. Be aware there are a couple chapters you are to read but we will not directly discuss in class.

Journal Exercise:

Students are required to submit 5 article summaries on some aspect of vertebrate biology from the primary literature. I have placed expectations for these assignments on Blackboard.

Optional Term paper:

The optional paper will be worth 100 points and can be used to augment your grade. If you choose to write a term paper your final grade will be determined based on 450 pts.

The paper must include at least 8 primary source articles and have a text (not including Literature Cited) of 12 – 15 double-spaced pages.

If you chose to do a paper:

1. You must meet with me and have your topic approved by Wednesday, April 5th.
2. By 5 pm on Wednesday, April 5th you must provide me with a prospective title, a brief (preliminary) outline demonstrating preliminary exploration of your topic, and a list of at least 3 relevant primary articles you plan to use.

Further expectations for the paper are provided on Blackboard.

Grading:

Course grades will be determined by performance on the following assignments:

If you choose not to write the optional paper:

Journal Exercises (5)	10 pts each
Exams I – II	100 pts. each
Comprehensive Final Exam	100 pts.
TOTAL	350 pts.

If you choose to write the optional paper:

Journal Exercises (5)	10 pts. each
Exams I – II	100 pts. each
Comprehensive Final Exam	100 pts.
Optional Term Paper	100 pts.
TOTAL	450 pts.

Grades will be determined by dividing the total points earned by the total points possible and multiplying by 100. Grade assignments are below:

<u>Percentage</u>	<u>Grade earned</u>	<u>Percentage</u>	<u>Grade earned</u>
94 – 100	A	73 – 76	C
90 – 93	A-	70 – 72	C-
87 – 89	B+	66 – 69	D+
83 – 86	B	60 – 65	D
80 – 82	B-	< 60	F
77 – 79	C+		

Student Responsibilities:

Students are responsible for all information presented in lecture, along with assigned readings. I have no tolerance for cheating. Students are expected to know and follow the University of Scranton policies concerning academic honesty.

Important Dates:

Monday, 20 February	- Journal Exercise Due (Fish)
Wednesday, 1 March	- Exam #1
Monday, 13 March	- Journal Exercise Due (Amphibians)
Wednesday, 29 March	- Journal Exercise Due (Reptiles)
Wednesday, 5 April	- Exam #2
Wednesday, 5 April	- Optional Paper Outline due
Wednesday, 12 April	- First Day of Spring Break!
Wednesday, 26 April	- Journal Exercise Due (Birds)
Monday, 1 May	- Optional Term Paper due
Exam Week	- Comprehensive Final/Journal Exercise due (Mammals)

Tentative Lecture Schedule

Week of	Topic	Reading
30 Jan	Course introduction/evolution and natural selection	Chapter 1,2
6 Feb	Vertebrate origins and phylogeny	Chapter 1, 2
13 Feb	Vertebrate origins and phylogeny/Early vertebrates	Chapter 3, 4
20 Feb	Rise of the jawed vertebrates	Chapter 5
27 Feb	Bony fishes	Chapter 6
6 March	Bony fishes/Life on land	Chapter 7,8
13 March	Tetrapod origins	Chapter 9
20 March	Amphibians	Chapter 10
27 March	Reptiles – turtles/crocodylians	Chapter 9, pages 211-218 Chapter 12, 16
3 April	Reptiles - lepidosaurs	Chapter 13
10 April	Reptiles – lepidosaurs/archosaurs	Chapter 16
19 April	Reptiles - archosaurs	Chapter 16
24 April	Aves	Chapter 16, 17
1 May	Aves/Ectothermy vs. endothermy	Chapter 14, 22
8 May	Mammals	Chapter 18, 20
15 May	Finals	