

EVOLUTION OF VERTEBRATE LIFE

BIOL 474 Fall 2019

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Lecture: Tues/Thurs at 9:30-10:45am in Wilson Hall 107

Prerequisites: BIOL 101 & 101L. One course over 200 is required.

Office hours and contact: Mondays and Thursdays 11am-1pm in Wilson 210. No appointment needed, just come on in. I will also meet anytime that I am available outside of those hours (by appointment) for those who cannot make it during regular office hours. Also, you can email me: johnsonc@bio.unc.edu with questions or ask me before/during/after lecture. Don't bother with the phone, since I am rarely sitting down for very long; you'll not likely find me that way.

Fall 2019 Course Information: This course is a study on the history of vertebrate form (morphology) and the transformation of primitive chordates to advanced forms, focusing on major transitions. We will focus on anatomical, embryological, and physiological attributes of major taxa.

Laboratory: Lecture is a co- or pre-requisite for lab. Lab is not required, but highly recommended. Since lab reinforces lecture with hands on examination of skeletons and dissection of representative organisms, students taking the lab will find substantial overlap between lecture & lab. Labs will be taught by Teaching Assistants, coordinated by me. If you have a problem with lab, please try to work things out with your TA before bringing it to my attention.

Lab Manual: Required if taking the lab - *Manual of Comparative Vertebrate Dissection* by Fishbeck and Sebastiani, 2nd edition. ISBN: 0895827484. You'll want a 3 ring binder to hold this manual.

Textbook: Vertebrates, 8th edition by Kardong, recommended. An older edition will work just as well.

My thoughts on testing and preparing for the exam...

I believe strongly in offering a challenging course that engages the well-prepared student. The student who receives an 'A' will have mastery of the subject matter (as is recommended by the university's guidelines). That said, I am committed to ALL students walking away from this course with a better understanding of vertebrate biology. If you need help archiving your goals, please reach out and contact me by email or during office hours.

The testing for this course will be based on my lectures. While I will not "teach from the book," the **textbook** is an essential reference. The information contained within it is far better than anything that will come out of my mouth. It has been scrutinized for grammar & accuracy. Therefore, you can assume that by reading AND studying the text you will be learning the highest quality of information and have the best understanding possible for the exam.

Presentation slides are tools for presentation and perhaps for review, but they DO NOT contain the entirety of information that will be expected of you. I intentionally keep the words on my slides to a minimum. If entire textbooks could be distilled to a few dozen powerpoint files, textbooks wouldn't be so big. Presentations by design are visual and carry as much information with as few words as possible. Keep this in mind when you decide how to study for an exam made entirely of "words."

Grading policy and other information: Outside of lecture, I will make any important information known through the 'announcements' section of Sakai so be sure to check it often. Grades will be posted to Sakai as soon as they are available after exams. Your grade for this course will be determined by 4 exams of equal weight.

Grading scale:

		93.0-100	A	90.0-92.9	A-
87.0-89.9	B+	83.0-86.9	B	80.0-82.9	B-
77.0-79.9	C+	73.0-76.9	C	70.0-72.9	C-
67.0-69.9	D+	60.0-66.9	D		
		<60	F		

BIOLOGY 474 – LECTURE SCHEDULE

Date	Lecture Topics
T Aug 20	Introduction
R Aug 22	Fish (no really, it'll be interesting)
T Aug 27	Tetrapods
R Aug 29	Early development of vertebrates
T Sep 3	Vertebrate integument
R Sep 5	Components of the cranial skeleton
T Sep 10	Temporal fenestration; mammalian specializations
R Sep 12	Catch up
T Sep 17	Exam 1
R Sep 19	Axial skeleton
T Sep 24	Axial skeleton phylogeny/Appendicular skeleton
R Sep 26	Appendicular skeleton of fish
T Oct 1	Tetrapod limb evolution
R Oct 3	Muscle structure, function; electric organs
T Oct 8	Specialization of axial and appendicular musculature
R Oct 9	Support and Locomotion
T Oct 15	Exam 2
R Oct 17	Fall Break
T Oct 22	Teeth, oral cavity to the stomach
R Oct 24	The rest of the digestive system
T Oct 29	Respiratory system: fish
R Oct 31	Hematopoietic tissues, heart/vessel structure & development
T Nov 5	Evolution of heart and vessels: fish, amphibians, reptiles
R Nov 7	Excretory system development & structure
T Nov 12	Exam 3
R Nov 14	Development, sex determination & reproductive patterns of vertebrates; Male reproduction.
T Nov 26	Female reproduction
R Nov 28	Thanksgiving recess
T Dec 3	General sensation; chemoreceptors, lateral line, electroreceptors
T Dec 10	8am Final exam, Wilson 107