

Evolution of Vertebrates (Biology 3219)

Professor: Dr. Janice M. Hughes
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Office hours: Wednesday 1:15 to 2:15

Please note that office hours by appointment are available and encouraged. Contacting me by email is best. Also, I am always in attendance in the labs.

Course description:

Survey of vertebrate animals with an evolutionary and paleontological perspective on adaptive features. Lab sessions examine morphological, anatomical, and behavioural characteristics, with special reference to comparative locomotory, feeding, and reproductive strategies.

Required lab manual: Hughes, J. M. 2016. *Evolution of Vertebrates Lab Manual*.
Lakehead University Bookstore.

Optional textbook: Pough, F.H., C. M, Janis, and J. B. Heiser.
Vertebrate Life. Prentice Hall.

Please note the following:

Lectures:

1. There is no required textbook for this course. However extensive resources, including PDF outlines of lecture slides, glossaries, taxonomies, and on-line study aids, are available on the course D2L website.
2. Attendance in lectures is highly recommended. Lecture notes are not provided, and PDFs of slides only give an outline of course material. The things that I say in class are important!
3. There are two online lecture tests held during the term. These tests are not cumulative. There is no exam scheduled during the final exam period in April.

Labs:

1. Students taking this course will be required to observe and/or handle study skins, skeletons, and preserved specimens during the laboratory sessions. Those who are uncomfortable with this practice should not register in this course. There are no dissections.
2. Lab attendance is highly recommended because there is no review lab. Make sure that you are well grounded in all lab materials and specimens before you leave each lab!

Assignments:

1. Three labs have assignments that must be completed and handed in during the lab session. There will be no opportunity to make up missed lab assignments.
2. The fossil species accounts are due March 15. Please submit a PDF file to the D2L dropbox, and be sure to retain a copy in case of submission failure. More information on the format for this assignment will be provided on the D2L course webpage and in class. This work must be referenced! Any form of plagiarism (and this includes copying, downloading, cutting-and-pasting, etc) will result in a grade of zero. I will be checking so be forewarned!
3. Late fossil species accounts will be accepted; however, 1.5% (out of the total 15%) will be deducted for each day that the assignment is late.
4. The dinosaur project may be done instead of the fossil species account. More information will be provided in class.

Tests and Exams:

1. The lecture tests will be given online through the D2L course webpage. More information about this testing process will be provided in class and on the course webpage.
2. Attendance at the scheduled lab exam is mandatory (no excuses!). There will be no opportunity to make up a missed lab exam.

Grading scheme:

Lab assignment 1	February 1	2%
Midterm test (online)	February 13	25%
Lab assignment 2	March 1	2%
Fossil species accounts	March 15	15%
Lab assignment 3	March 29	1%
Final test (online)	March 31 (Friday)	25%
Lab exam	April 5	30%

Lecture Topic Outline

January 9		Introduction
January 11	Unit 1	Vertebrate diversity and classification
January 16	Unit 2	Chordate/Vertebrate bauplan
January 18	Unit 3	Early vertebrates and agnathans
January 23	Unit 4	Gnathostome bauplan; Life in water
January 25	Unit 5	Early gnathostomes
January 30	Unit 6	Chondrichthyans
February 1	Unit 7	Major radiation of fishes: Osteichthyans
February 6	Unit 8	Tetrapod origins and the invasion of land
February 8	Unit 9	Extant amphibians: Lissamphibians
February 13		<u>Online midterm test (Units 1-8) No lecture</u>
February 15	Unit 10	Evolution of amniotes; Anapsids
February 20/22		Study week
February 27	Unit 11	Lepidosauurs
March 1	Unit 12	Mesozoic archosaurs
March 6		
March 8	Unit 13	Evolution of birds
March 13	Unit 14	Avian flight
March 15	Unit 15	Avian ecology and behaviour
March 20		
March 22	Unit 16	Rise of mammals
March 27	Unit 17	Monotremes and marsupials
March 29	Unit 18	Eutherians
March 31 (Friday)		<u>Online final test (Units 9-18)</u>
April 3/5		<u>No lectures</u>

Laboratory Topic Outline

January 11		No lab
January 18	Lab 1	Integuments and skeletons
January 25		No lab
February 1	Lab 2	Aquatic locomotion
February 8		No lab
February 15	Lab 3	Feeding: Form and function
February 22		<u>Study week</u>
March 1	Lab 4	Terrestrial locomotion
March 8		No lab
March 15	Lab 5	Flight
March 22		No lab
March 29	Lab 6	Sensory systems
April 5		<u>Lab exam</u>