Evolution of Vertebrates (Biology 3219)

Professor: Dr. Janice M. Hughes
Office: CB 4052
Telephone: 343-8280

Contact information: Email: janice.hughes@lakeheadu.ca

Office hours: Monday 2:00 to 3:00

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 supplementary notes: Hughes, J. M. *Evolution of Vertebrates Lecture and 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 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. Attendance at all the labs is highly recommended because there is no review lab prior to the lab exam. 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 on March 16. Please submit them using 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 deduced for each day that the assignment is late.

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.

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	January 27	1%
Midterm test (online)	February 8	25%
Lab assignment 2	February 24	2%
Lab assignment 3	March 16	2%
Fossil species accounts	March 16	15%
Lab exam	March 23	30%
Final test (online)	March 29	25%

Lecture Topic Outline

January 4		Introduction
January 6	Unit 1	Vertebrate diversity and classification
January 11	Unit 2	Chordate/Vertebrate bauplan
January 13	Unit 3	Early vertebrates and agnathans
January 18	Unit 4	Gnathostome bauplan; Life in water
January 20	Unit 5	Early gnathostomes
January 25	Unit 6	Chondrichthyans
January 27	Unit 7	Major radiation of fishes: Osteichthyans
February 1	Unit 8	Tetrapod origins and the invasion of land
February 3	Unit 9	Extant amphibians: Lissamphibians
February 8		**Online midterm test (Units 1-8)**
February 10	Unit 10	Evolution of amniotes; Anapsids
February 15/17		**Study week**
February 22	Unit 11	Lepidosaurs
February 24	Unit 12	Mesozoic archosaurs
February 29		
March 2	Unit 13	Evolution of birds
March 7	Unit 14	Avian flight
March 9	Unit 15	Avian ecology and behaviour
March 14		
March 16	Unit 16	Rise of mammals
March 21	Unit 17	Monotremes and marsupials
March 23	Unit 18	Eutherians
March 28		**No lecture (Holiday)**
March 29 (Tuesday)		**Online final test (Units 9-18)**
March 30/April 4		**No lectures**

Laboratory Topic Outline

January 6		**No lab**
January 13	Lab 1	Integuments and skeletons
January 20		**No lab**
January 27	Lab 2	Aquatic locomotion
February 3		**No lab**
February 10	Lab 3	Feeding: Form and function
February 17		**Study week**
February 24	Lab 4	Terrestrial locomotion
March 2		**No lab**
March 9	Lab 5	Flight
March 16	Lab 6	Sensory systems
March 23		**Lab exam**
March 30		**No lab**