Evolution of Vertebrates (Biology 3219)

Professor: Dr. Janice M. Hughes
Office: CB 4052

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

Office hours: Wednesday 11:45 to 12:45

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. *Evolution of Vertebrates Lab Manual.*
(Download from D2L course webpage)

Optional textbook: Pough, Janis, and Heiser. *Vertebrate Life*. Prentice Hall.
(Older editions $20-40 on Amazon)

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, marking rubrics, 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. Fossil species accounts are due March 15; submit a PDF file to the D2L dropbox. More information will be provided on the D2L course webpage and in class. This work must be referenced! Any form of plagiarism (e.g., copying, downloading, cutting-and-pasting) will result in a grade of zero. I will be checking so be forewarned! Late accounts will be accepted; however, 1.5% (out of the total 15%) will be deducted for each day the assignment is late.

3. The dinosaur project may be done instead of the fossil species accounts. Groups of two or three students may work together on one dinosaur. The project is due on March 28 in the lab. This is a very time-consuming project that cannot be done at the last minute, so don't procrastinate! It is best to start early and work throughout the term. Bonus marks will be given for a complete dinosaur handed in on time. 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	January 31	2%
Midterm test (online)	February 13	25%
Lab assignment 2	February 28	2%
Fossil species accounts	March 15	15%
Lab assignment 3	March 28	1%
Dinosaur (optional)	March 28	15% (plus bonus)
Final test (online)	March 29	25%
Lab exam	April 4	30%

Lecture Topic Outline

January 9	Unit 1	Introduction/Vertebrate Diversity
January 11	Unit 1/2	Classification/Chordate bauplan
January 16	Unit 2	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		**Online midterm test (Units 1-8) No lecture**
February 15	Unit 10	Evolution of amniotes; Anapsids
February 20/22		**Study week**
February 27	Unit 11	Lepidosaurs
March 1	Unit 12	Mesozoic archosaurs/Crocodilians
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	Unit 16	Rise of mammals
March 22	Unit 17	Monotremes and marsupials
March 27	Unit 18	Eutherians
March 29		**Online final test (Units 9-18) No lecture**
April 3/5		**No lectures**

Laboratory Topic Outline

January 10		**No lab**
January 17	Lab 1	Integuments and skeletons
January 24		**No lab**
January 31	Lab 2	Aquatic locomotion
February 7		**No lab**
February 14	Lab 3	Feeding: Form and function
February 21		**Study week**
February 28	Lab 4	Terrestrial locomotion
March 7		**No lab**
March 14	Lab 5	Flight
March 21		**No lab**
March 28	Lab 6	Sensory systems
April 4		**Lab exam**