Evolution of Vertebrates (Biology 3219)

Professor: Dr. Janice M. Hughes
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Office hours: Scheduled office hours TBA

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.

Required book: McGowan, C. *T-rex To Go.* Harper Collins.

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. There are two lecture tests held during the term that total 50% of the grade overall. These tests are not cumulative. There is no exam scheduled during the final exam period in April.

3. 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!

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 in the labs is highly recommended. 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.

3. Attendance at the scheduled lab exam is mandatory (no excuses!). There will be no opportunity to make up a missed lab exam.

4. 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. The primary assignment in the course is the dinosaur construction project. Dinosaur projects may be done in groups of up to 3 students. More information will be given in class.

2. Bonus points will be awarded for successful completion of a dinosaur. Late dinosaurs receive no bonus marks, and per diem marks may be deducted.

3. Students may make a "research" presentation in lieu of the dinosaur with permission of the professor; however, no bonus marks will be awarded. Presentation schedule TBA.

Grading scheme:

Midterm test	February 9	25%
Final test	March 30	25%
Lab assignment 1	January 28	2%
Lab assignment 2	February 25	1%
Lab assignment 3	March 18	2%
Lab exam	March 25	25%
Dinosaur	March 18	20% + 3% Bonus

Lecture Topic Outline

January 5		Introduction
January 7	Unit 1	Vertebrate diversity and classification
January 12	Unit 2	Chordate/Vertebrate bauplan
January 14	Unit 3	Early vertebrates and agnathans
January 19	Unit 4	Gnathostome bauplan; Life in water
January 21	Unit 5	Early gnathostomes
January 26	Unit 6	Chondrichthyans
January 28	Unit 7	Major radiation of fishes: Osteichthyans
February 2	Unit 8	Tetrapod origins and the invasion of land
February 4	Unit 9	Extant amphibians: Lissamphibians
February 9		**Midterm test (Units 1-8)**
February 11	Unit 10	Evolution of amniotes; Anapsids
February 16/18		**Study week**
February 23	Unit 11	Lepidosaurs
February 25	Unit 12	Mesozoic archosaurs
March 2		
March 4	Unit 13	Evolution of birds
March 9	Unit 14	Avian flight
March 11	Unit 15	Avian ecology and behaviour
March 16		
March 18	Unit 16	Rise of mammals
March 23	Unit 17	Monotremes and marsupials
March 25	Unit 18	Eutherians
March 30		**End of term test (Units 9-18)**
April 1		**No lecture**

Laboratory Topic Outline

January 7		**No lab**
January 14	Lab 1	Integuments and skeletons
January 21		**No lab**
January 28	Lab 2	Aquatic locomotion
February 4	Lab 3	Feeding: Form and function
February 11		**No lab**
February 18		**Study week**
February 25	Lab 4	Terrestrial locomotion
March 4		**No lab**
March 11	Lab 5	Flight
March 18	Lab 6	Sensory systems
March 25		**Lab exam**
April 1		**No lab**