Evolution of Vertebrates (Biology 3219)

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

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

Office hours:

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. 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!

2. 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.

3. There are two online lecture tests totalling 50% of the course grade. They are not cumulative. There is no exam during the final exam period in April. Please remember that you must do these online tests alone (no help or collaboration!). Also, cutting and pasting, copying, or downloading answers from another source (e.g., Wikipedia) is considered plagiarism. The minimum penalty for plagiarism or collaboration on the tests will be a mark of zero on the

test. You can find more information on the D2L course webpage. Not reading these instructions is not an excuse for not knowing them!

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 because there is no review lab prior to the lab exam. Make sure that you have a good understanding of the material before you leave each lab. I will be present in each lab so please ask questions!

3. There will be a bell-ringer lab exam held on April 3. More information about this testing process will be provided in class.

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 14; please 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 27 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 (that looks like a dinosaur!) handed in on time. More information will be provided in class.

Additional information:

1. I am committed to providing a learning environment that will give all students the best possible chance of success in this course. Please come and see me during office hours (or by appointment), or talk to me in class or lab, if I can be of assistance.

2. For students registered with Student Accessibility Services, I can offer many solutions for your recommended accommodations. Please make an appointment and we can discuss these options.

Grading scheme:

Lab assignment 1	January 30	2%
Midterm test (online)	February 14	25%
Lab assignment 2	February 27	2%
Fossil species accounts	March 14	15%
Lab assignment 3	March 27	1%
Dinosaur (optional)	March 27	15% (plus bonus)
Final test (online)	March 28	25%
Lab exam	April 3	30%

Lecture Topic Outline

January 8	Unit 1	Introduction/Vertebrate Diversity
January 10	Unit 1/2	Classification/Chordate bauplan
January 15	Unit 2	Vertebrate bauplan
January 17	Unit 3	Early vertebrates and agnathans
January 22	Unit 4	Gnathostome bauplan; Life in water
January 24	Unit 5	Early gnathostomes
January 29	Unit 6	Chondrichthyans
January 31	Unit 7	Major radiation of fishes: Osteichthyans
February 5	Unit 8	Tetrapod origins and the invasion of land
February 7	Unit 9	Extant amphibians: Lissamphibians
February 12	Unit 10	Evolution of amniotes; Anapsids
February 14		**Online midterm test (Units 1-9) No lecture**
February 19/21		**Study week**
February 26	Unit 11	Lepidosaurs
February 28	Unit 12	Mesozoic archosaurs/Crocodilians
March 5		
March 7	Unit 13	Evolution of birds
March 12	Unit 14	Avian flight
March 14	Unit 15	Avian ecology and behaviour
March 19	Unit 16	Rise of mammals
March 21	Unit 17	Monotremes and marsupials
March 26	Unit 18	Eutherians
March 28		**Online final test (Units 10-18) No lecture**
April 2/4		**No lectures**

Laboratory Topic Outline

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