

BIOL 382 /2 Comparative Animal Physiology • Fall 2011 • Course Outline

Concordia University, Biology Department

Lectures W F 11:45-13:00 in CC-314

Labs W Th 13:30 – 17:30 in SP-380.05

Instructor: Dr. Christopher Brett, christopher.brett@concordia.ca SP-501.15, ext. 3398

Lab Technician: Don Beattie, beat@alcor.concordia.ca SP-375.33, ext. 3362

TAs: Jessica Ethier, jess_ethier@yahoo.ca SP-301.08

Angela Lapierre, angelarose@videotron.ca SP-301.08

Prerequisites: BIOL 225, BIOL 226

Deadlines: DNE Sept 19, DISC Oct 30

Course Summary

The aim of this course is to familiarize students with animal physiology and organ systems. Cardiovascular, pulmonary, nervous, digestive, and endocrine systems are covered. Emphasis is placed on animal diversity and evolution, the integrative nature of animal physiology, and the underlying cell and molecular biology. The course is divided into 24 lectures (including 3 for student presentations) and 5 laboratory sessions. The lectures will follow 'Principles of Animal Physiology' by Christopher Moyes & Patricia Schulte (2nd edition). Students are expected to perform experiments and prepare lab assignments, to attend lectures and participate in class discussions, and to give a 10-minute presentation on a selected topic of animal physiology.

Assignment of Grades

Midterm EXAM – 15%

Final EXAM – 35%

Participation – 5%

Presentation – 15%

Lab Assignments – 15% (3% per lab)

Final Lab EXAM – 15%

Class Participation

Attendance at labs is mandatory

No make up labs or exams

(if you miss the lab or the exams and have a Doctor's note, then your other marks will be weighted proportionally higher)

Use of cell phones or hand-held devices is not permitted during class.

Outline of Lectures (Not necessarily in order)

Introduction to Physiology (Chapter 1)

Basic Principles of Chemistry and Biochemistry (Chapter 2)

Cell Physiology (Chapter 2)

Cell Signaling and Endocrinology (Chapter 3)

Neuron Structure and Function (Chapter 4)

Cellular Movement and Muscles (Chapter 5)

Respiration (Chapter 9)
Circulation (Chapter 8)
Nervous Systems (Chapters 6-7)
Locomotion (Chapter 12)
Digestion (Chapter 11)
Ion and Water Balance (Chapter 10)
Thermal physiology (Chapter 13)

Presentations

You will form a group of 2 or 3 and the presentations will be ~10 minutes in length. You will use supporting materials (*eg.* powerpoint or a poster) for your talk. You will select a topic in Physiology, related to what we will cover in class, and present the topic from either a medical angle (*eg.* respiratory illness, diabetes), or from a more ecological angle (*eg.* evolution, diversity). The presentations will start the week of Nov 23. You must submit the names of the people in your groups and your topics to the instructor by Oct 07 (this is to make sure that your topic is appropriate and so that I can help you find literature) and I will assign you a presentation day/time. You will evaluate your peers by providing comments and assigning a grade; the final grade will be an average of my grade and the class grade. You will be expected to ask questions of your peers, which will count toward your participation grade.

Lab Schedule

Experiment 1 Haematocrit and Tonicity of Whole Blood and Haemolysis of Red Blood Cells – Sep 21/22
Experiment 2 Nerve Physiology, Characteristics of the Nerve Impulse – Oct 05/06
Experiment 3 Properties of Skeletal Muscle – Oct 19/20
Experiment 4 Metabolic Rate and Respiration – Nov 02/03
Experiment 5 Pulmonary and Cardiovascular Physiology – Nov 16/17
Lab EXAM in class (CC-314) – Dec 02

Assignments are to be handed in to your TA (at their office) by 5pm exactly one week after your lab.

Ask your TA about questions pertaining to the lab (since they will be marking them, they are the best source).

Late assignments will not be accepted.

Students must bring a digital or hard copy of the lab manual to all lab sessions.

Additional Information

Lecture notes, assigned reading, assignment clarifications, answer keys for assignments and midterms, and grades will be posted on Moodle.

The required textbook (Principals of Animal Physiology, Moyes & Schulte) and related textbooks are on reserve at the library.

If you have any questions related to the lectures, I am happy to answer them, but you must make an appointment to see me.