

2017 Course Outline - Biology 3602A/B: Animal Physiology II

Overview

This course, along with Biology 3601A/B (Animal Physiology I), explores the mechanisms, integration and evolution of physiological and biochemical systems within animals. By using a comparative approach, we will explore the diversity of evolutionary “strategies” adopted by phylogenetically distinct animals. We will also explore how these animals use these strategies to cope with natural selective pressures, especially in extreme environments. Human physiology will be discussed only briefly for the sake of comparison, but is *not* the main focus of this course.

Instructor

James Staples (Professor); Primary contact by e-mail (jfstaple@uwo.ca) using your @uwo.ca account ONLY. Office; BGS 3020 (please make an appointment unless it’s urgent). Phone (in case of urgent matters); 519-661-4057.

Office hours will be announced through OWL and in class.

Course Website

OWL (<https://owl.uwo.ca/portal/site/3e22b8c9-fd1a-4236-9495-df8825002347>) is the primary method of disseminating information about course including announcements, schedules, and lecture outlines, to all students, as well as forums for discussing content-related questions. Students are responsible for checking OWL on a regular basis.

Pre-requisites

A minimum mark of 60% in Biology 2601 (Organismal Physiology) or Physiology 3120, the former Physiology or Biology 310.

Senate regulation on prerequisites: “Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites”.

Course Materials

Textbook: Hill, R.W., Wyse, G.A. & Anderson, M. (2016) *Animal Physiology*. 4th Edition. Sinauer. Either the bound or looseleaf format. This is the same as that used in Bio2601 or 3601. Copies have been requested for 2 hour reserve at Taylor library. Page numbers will be based on the 4th edition. If you choose to use the 3rd edition you must find the correct corresponding pages.

Readings: Required (i.e. subject to testing) readings will be assigned from the text and, occasionally, from external sources that will be available through OWL. Additional review readings covering material from prerequisite courses, will be assigned from the textbook. You are expected to know the material covered in the review readings. Occasionally I will suggest “extra” readings for your own interest, but you are not responsible these with regard to exams/quizzes.

Tutorial Material: Tutorial assignment and materials will be posted on OWL at least 24 hours before the first tutorial sessions.

Lectures (section 001)

Fifty-minute lectures (M, W, F, 10:30-11:20 AM, BGS-0165) begin Fri. 6 Jan. They will be presented primarily using electronic slides (PowerPoint). Slide outlines in .pdf format will be available through OWL approximately 24 hours before a lecture. These are outlines only, with emphasis on figures and data, but not all of the lecture content will be included. Many more details will be presented in class, and expanded upon through interactive class discussions. As such, the ***outlines cannot replace preparatory readings, attendance, note-taking and participation*** in lectures. Students are responsible for everything presented in class whether or not it appears in the readings or outlines. Audio recording is permitted, but not video (unless approved for special circumstances; see accessibility statement below).

Tutorials

One 2-hour tutorial **every other week** beginning 10 Jan. with the following schedule/locations:

- Section 002: Tuesday 9:30-11:20; UCC-53
- Section 003: Tuesday 1:30-3:20; BGS-0165
- Section 004: Wednesday 2:30-4:20; BGS-0165
- Section 005: Thursday 9:30-11:20; KB-K203

If you miss your tutorial section you cannot attend another.

Teaching Assistant/Tutorial Leader: Jacqueline Lebenzon (jlebenzo@uwo.ca; BGS 2035)

Tutorials for all sections begin the week of 10 January. Instructions for submission of tutorial assignments will be delivered during the tutorial itself. Assignments will include “journal club” presentations, and take-home short answer questions based on primary literature papers. Participation in group discussions will form part of the evaluation for tutorials. Attendance at tutorial sessions is required to receive credit for tutorial assignments (i.e. you cannot get credit for your assignment if you did not attend your tutorial). Accommodation will be considered for valid medical or personal reasons approved by Faculty counsellors.

All required tutorial assignments may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Methods of Evaluation

- In-Class quiz (*tentative* date; 1 Feb.).....15%
 - normally multiple choice, matching, fill-in-the-blank
 - material from lectures & readings
- Out-of-Class Midterm (2 hours, *tentative* date; 7 Mar., location TBD).....25%
 - normally multiple choice, short answer, calculations, graphing
 - NOT cumulative; covers material since quiz
- Final Exam (location and date TBD by Registrar).....40%
 - normally short answer, essay
 - cumulative; covers material spanning all course lectures (but not tutorials)
- Tutorials (biweekly).....20%

Scientific calculators are permitted during the quiz and exam. No other electronic devices (e.g. phones, iPods) may be in your possession during tests and exams, even for timekeeping purposes. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf. Computer-marked, multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Missed Quiz/Exam/Tutorial/Tutorial Assignment?

It is university policy that a regularly scheduled class (lecture or tutorial) takes precedence over tests and exams. Therefore, if another course schedules a test or exam that takes place during your lecture or tutorial, the instructor for that course must accommodate you. I am happy to write a supporting e-mail to other instructors if this becomes an issue.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. The counsellor will contact me directly regarding the validity of your absence, and then I will contact you to discuss possible forms of accommodation. If the counsellor determines that your absence was not valid you will receive 0% for the missed quiz or exam, or the appropriate late penalties will apply to assignments.

If you are a science student, the Academic Counselling Office of the Faculty of Science is located in WSC 191, and can be contacted at 519-661-3040 or scibmsac@uwo.ca. Their website is http://www.uwo.ca/sci/undergrad/academic_counselling/index.html.

It is Faculty of Science policy that a student who chooses to write a test or exam deems themselves fit enough to do so, and the student must accept the mark obtained. Claims of medical, physical, or emotional distress after the fact will not be considered. A student requiring academic accommodation due to illness must use the Student Medical Certificate (https://studentservices.uwo.ca/secure/medical_document.pdf) when visiting an off-campus medical facility. For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

In the event of academic conflicts, make-ups for quizzes and exams are possible if they can be completed in a timely manner. For quizzes or midterms missed for other valid reasons that are confirmed by the Dean's office there will be *no make-ups*. Marks will be redistributed equitably among the tests that you do write. If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam). You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html). The format of any Special Exam may be different from the regular final. In similar courses make-up finals have consisted of several essay questions or even oral questions.

Anticipated Course Topics

Topics covered in Bio 3602 include:

- Gas exchange – properties of water vs. air; Fick's law of diffusion; metabolic consequences; CO₂ exchange; altitude & hypoxia adaptations.
- Circulation – evolutionary "design" of circulatory systems; flow properties and regulation; ventilation/perfusion matching.
- Digestion and Diet – comparing feeding modes; regulation of ingestion, digestion, absorption, incorporation, egestion; form & function related to diet type; metabolic and ecological consequences.
- Locomotory & Exercise Physiology – muscle physiology & biomechanics; cost of transport & its allometry; what determines/constrains exercise capacity?; training effects; recovery; selective pressures favouring sprint vs. endurance performance.
- Human Influences – physiological effects of environmental pollutants, global climate change etc.

Accessibility

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2111 ext. 82147 if you have questions regarding accommodation.

Support Services

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help. Additional student-run support services are offered by the USC,

<http://westernusc.ca/services>. The website for Registrarial Services is
<http://www.registrar.uwo.ca>.

Scholastic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:
https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.
Work turned in for examinations must be yours alone.