

2012 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 that are used to cope with natural environmental selective pressures. Animals thriving in extreme environments will be featured for emphasis. Human physiology will be discussed only briefly, and is *not* the main focus of this course.

Instructors:

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

Antirequisites: Biology 3651, the former Biology 351.

Lectures: Fifty-minute lectures (M, W, F, 9:30-10:20 AM, BGS 0165) will be presented primarily using electronic slides (PowerPoint). Slide outlines will be available through WebCT approximately 24 hours before a lecture. These are outlines only, and not all of the content presented in class will be included. More details will be presented in class and interactive discussions will elaborate on these details. As such, the ***outlines cannot replace attendance, note-taking and participation*** in lectures. Students are responsible for everything presented in class whether or not it appears in the textbook 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 with the following schedule/location:

- Sections 002 & 006: M 12:30-2:20, HSB 9
- Sections 003 & 007: Tu 11:30-1:20, SH 3307 (Somerville)
- Sections 004 & 008: W 11:30-1:20, STH 2166 (Stevenson)
- Sections 005 & 009: Th 11:30-1:20, WL 259 (Weldon Library)

Teaching Assistant/Tutorial Leader: TBA

Tutorials for all sections begin the week of 15 January. Tutorial assignment and materials will be posted on WebCT at least 24 hours before the first tutorial sessions. 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.

Course Content: Topics covered in Bio 3602 include:

- Temperature and Thermoregulation – temperature effects on enzymes, membranes; endothermy vs. ectothermy; conduction, radiation and evaporation; regulating environmental heat exchange; heat generation; metabolic consequences.
- Depth and Pressure – direct effects of pressure on enzymes, membranes; indirect effects on other physiological systems.
- 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 – biomechanics; cost of transport & its allometry; what determines/constrains exercise capacity?; training effects; recovery; selective pressures favouring sprint vs. endurance performance.
- Endocrine & Reproductive Physiology – mechanisms and regulation; environmental polygons; ecological interactions.
- Human Influences – physiological effects of environmental pollutants, global climate change etc.

Evaluation:

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| • In-Class quiz (date TBA) | 15 % |
| • Out-of-Class Midterm (date TBA) | 25 % |
| • Final Exam (scheduled by Registrar) | 40 % |
| • Tutorial assignments (biweekly) | 20% |

Missed Quiz/Exam/Tutorial Assignment? Should you miss an exam or an assignment deadline for medical or other genuine reasons, take the appropriate documentation to your Faculty counsellor. The counsellor will contact me directly regarding the validity of your absence, and then I will contact you to discuss possible forms of accommodation. For information and documents related to accommodation for medical illness see <https://studentservices.uwo.ca/secure/index.cfm>.

For quizzes or midterms missed for genuine reasons that are confirmed by the Dean's office there will be **no make-ups**. Marks will be redistributed equitably among the tests you do write. For missed finals remember that the format of any make-ups will be different from the regular final. In similar courses make-up finals have consisted of several essay questions or oral questions. If the Dean's office determines that your absence was not valid you will receive 0% for the missed test/exam, or the appropriate late penalties will apply to assignments.

Textbook: *Principles Of Animal Physiology* (Required); ISBN: 9780321501554
Author: Moyes; Pearson Edition: 2nd

Readings: Readings will be assigned from the text and, occasionally, from external sources, that will be available through WebCT. Unless otherwise stated, all assigned readings are required and *subject to examination*.

- Notes:** 1) Scholastic offences are taken seriously and students are directed to read the policy at http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf. Computer software used to mark multiple choice questions can detect unusual answer patterns that suggest copying among students. All confirmed cases of cheating/plagiarism will be reported to the Dean's office. Penalties are determined in consultation with chair of the Biology Undergraduate Education Committee, the chair of the Biology Department and the Associate Dean (Academic). Penalties range from mark deductions, course failure or expulsion from the University.
- 2) We endeavour to be as fair as possible in our evaluation but please keep in mind that we must be fair to the entire class. We are happy to discuss questions about exam/assignment grading, especially if your goal is to improve performance. However questions such as "Can you please give me 2 extra marks so I can get X%?" will not be considered, as awarding marks arbitrarily is not fair.

Accessibility Statement: Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.