

Bio 3602 Course Outline

1. Course Information

Animal Physiology II, Winter 2025.

Lectures (Section 001): Mondays, Wednesdays, Fridays 10:30-11:20 AM.

- in person; students may record audio but not video or still photographs

Tutorials: In person, every 2nd week (beginning 14 Jan., see Brightspace Calendar for schedule)

Tutorial Section	Day/Time
002	Tue. 9:30-11:20 AM
003	Tue. 1:30-3:30 PM
004	Wed. 2:30-4:30 PM

List of Prerequisites

A minimum mark of 60% in Biology 2601A/B. Physiology 3120 will only be considered with special permission (see below).

Unless you have either the prerequisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) 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.

2. Instructor Information

Instructor and Course Co-ordinator: James Staples, Professor (jfstaple@uwo.ca), BGS 3020

Tutorial Leader: Brynne Duffy, PhD candidate (bduffy5@uwo.ca)

Students must use their Western (@uwo.ca) email addresses when contacting course staff, and include "Bio 3602" in the subject line.

Office Hours as needed and announced in class and on OWL, format TBD (likely by Zoom)

3. Course Syllabus, Schedule, Delivery Mode

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.

Lecture Learning Outcomes: Successful students will achieve each of the following outcomes:

- have a working knowledge of the mechanisms and regulation of individual biochemical and physiological systems.
- understand and be able to articulate how both phylogeny and environmental selective pressures influence the evolution of biochemical and physiological systems.
- be able to integrate the function of these systems to explain the coordinated regulation of an animal’s internal environment.

Tutorial Learning Outcomes: Successful students will achieve each of the following outcomes:

- independently find primary literature and assess its quality and relevance to course topics
- make presentations of primary papers to their classmates in which they critically evaluate the papers, and emphasize data and their significance in the presentation
- lead discussions based on these papers
- use knowledge derived from reading the presented paper to contribute to the discussions led by classmates

Important Dates

Jan 6, 2025	Classes resume
Jan 14, 2025	Last day to add a second-term half course Tutorials begin
Feb 15- Feb 23, 2025	Spring Reading Week
Feb 17, 2025	Family Day; Western closed
Mar 7, 2025	Last day to drop a second-term half course without academic penalty
April 4, 2025	Fall/Winter Term classes end
April 5-6, 2025	Study Day
April 7-30, 2025	Final examination period

Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

4. Course Materials

Textbook (required): Hill, R.W., Wyse, G.A. & Anderson, M. (2022) Animal Physiology. 5th Edition. Sinauer, Sunderland, MA. The textbook costs \$171.35 (loose-leaf) or \$99.00 (eBook 365 day rental).

This is the version of the book you used in Biology 2601 (and 3601), so you may already own a copy. You may use the older 4th edition (2016), and I will supply readings for both editions.

In the event that Lectures and Tutorials cannot be delivered in person students must have access to the following:

- a laptop or computer with working microphone and webcam
- a reliable internet connection

All course material will be posted to BRIGHTSPACE: <https://westernu.brightspace.com/>

Students are responsible for checking the course BRIGHTSPACE site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course BRIGHTSPACE site, they can seek support on the Brightspace Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

- in-class quiz (date TBA, likely late Jan.).....15%
 - may include multiple choice, matching, fill-in-the-blank
 - material from lectures & readings from Lectures 1 through 10
- midterm (date TBA, likely early March).....30%
 - out of class, likely 2 hours
 - may include multiple choice, short answer, calculations, graphing
 - NOT cumulative; covers lecture and reading material from Lectures 11 through 20
 - *This is a designated assignment i.e. students cannot use undocumented academic consideration requests for absences from this midterm*
- Final Exam (date TBD by registrar).....35%
 - date/time determined by registrars office (3 hours)
 - normally short answer, essay
 - cumulative; covers material spanning all course lectures and readings (but not tutorials)
- Tutorial
 - Presentations.....10%
 - Assignments5%
 - participation5%

Topics covered in Bio 3602 include:

- Unifying principles – phylogeny, thermodynamics, body size effects, environmental patterns, time scales
- 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.

Evaluation Scheme for Missed Assessments

In the case of approved academic consideration requests for absences (see below) from the quiz or midterm there will be no “make-up” tests. Instead, your marks will be reassigned to the final exam. Accepted academic consideration requests for absences from tutorial presentations will be made up before the end of term, as scheduled by the instructor and tutorial leader. There is no make-up for missing/late tutorial assignments, nor can you submit an assignment for a tutorial you did not attend. However, only the **best 3 of the 4 assignments** will be considered for the final course grade.

6. Student Absences

General information about missed coursework

Students must familiarize themselves with the University Policy on Academic Consideration – Undergraduate Students in First Entry Programs posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar’s webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request without supporting documentation in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Midterm (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under Special Examinations), especially for those who miss multiple final exams within one examination period.

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the Coursework with Assessment Flexibility section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade:

1. **minimum attendance at 3 tutorials** with a passing (>50%) grade of corresponding assignments
2. successful completion of assigned tutorial presentation with a passing (>50%) grade

In such cases a student will be awarded a grade of 45% for the course.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

6. Additional Statements

Land Acknowledgement

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

EDI Statement

This course supports the goals of equity, diversity and inclusion. Science and learning are best achieved by diverse participants having equal opportunities and feeling valued and included.

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

Academic Policies

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

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Scientific calculators are permitted in quiz/midterm/final exam but no other electronic devices (cell phones, tablets, computers, smart watches etc.) are permitted.

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.

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

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 Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

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.

Additional student-run support services are offered by the USC: <https://westernusc.ca/your-services/>