

University of Toronto Scarborough – Department of Biological Sciences
BIOB34 – Animal Physiology – Summer 2021

Course Instructor:

Dr. Jason Brown

Email: nysuloem.brown@utoronto.ca

Office Hours:

By appointment only:

<https://outlook.office365.com/owa/calendar/UniversityofTorontoScarborough2@utoronto.onmicrosoft.com/bookings/>

****NOTE:** You must book your appointment at least 6 hours in advance; appointments are 15 minutes; multiple students can attend together if desired.

Course Coordinator:

Laura Shelly

Email: laura.shelly@utoronto.ca

Teaching Assistants:

Dennison Trinh

Email: dennison.trinh@mail.utoronto.ca

FSG Facilitator:

Parsa Azizi-Mehr

Email: parsa.azizi@mail.utoronto.ca

Course Description: An introduction to the principles of animal physiology rooted in energy usage and cellular physiology. A comparative approach is taken, which identifies both the universal and unique mechanisms present across the animal kingdom. Metabolism, respiration, circulation, water regulation, movement, and neural circuits are the areas of principal focus.

Prerequisites: BIOA01H3 and BIOA02H3 and CHMA10H3 and CHMA11H3

Exclusions: (BIOB30H3), BIO270H, BIO204H

Lectures: *This is an online asynchronous course.* Four, 30-minute lecture videos will be recorded each week and made available through Quercus. Lecture notes (in PowerPoint format) will be made available at the same time.

Tentative Lecture Topics:

- | | |
|------------------------------------|----------------------------|
| 1 – What are Animals? | 5 – Respiratory Physiology |
| 2 – Metabolic Rate | 6 – Nervous Physiology |
| 3 – Thermal Physiology | 7 – Nitrogen Excretion |
| 4 – Feeding & Digestive Physiology | |

Textbook: *There is no textbook for this course.*

Evaluation:

Term Tests	35%	(25% best; 10% worst)
Assignments	30%	
Final Exam	35%	

Important Notes Regarding Evaluations:

Term Tests

There will be two Term Tests in this course, **which will be held online via Quercus**. The dates and times of the Term Tests will be determined by the Registrar's Office during the first few weeks of the semester, and I will post this information on Quercus as soon as it is available.

Term Tests may examine any material covered in this course, but the lectures emphasized on each Term Test will be announced on Quercus. Term Tests will be 2 hours and will comprise of multiple-choice questions only. **The Term Test questions will require students to think critically and creatively about the lecture content as students will be expected to explain novel observations and solve problems. This reflects my belief that undergraduate students need to develop not only their scientific knowledge but, more importantly, their competency for thinking, reasoning, and scientific inquiry.**

To help students prepare for the Term Tests, optional quizzes (here optional means not worth any marks) will be posted on Quercus each week. Students are strongly encouraged to discuss these quizzes with the course instructor when they encounter any difficulties, either by email or during office hours. **New this semester**, I will be providing detailed, audio walk-throughs of a few questions each week so that students receive more support with regards to how to approach the quiz/test questions.

Students will be permitted to consult their notes during Test Tests. Moreover, students will be permitted to collaborate with each other during the Term Tests via Google Docs. Links to these Google Docs will be made available at the start of each test. The purpose of this collaboration is i) to maintain exam fairness by ensuring that all students have access to the same information, ii) to encourage students to support each other's skill development, and iii) to foster community and dialogue among students.

If you know in advance that you cannot write a Term Test at the scheduled time because it conflicts with some other valid activity, please notify the course instructor as soon as possible so that arrangements can be made for you to write the Term Test at an alternative time. Any such alternative time must be before the scheduled date of the Term Test.

If you miss a Term Test due to medical illness, then you must submit a Self-Declaration of Student Illness Form, which is available at the following link:

<https://www.utoronto.ca/biosci/sites/utoronto.ca/biosci/files/u26/Self%20Declaration%20of%20Student%20Illness%20Fall%202018.pdf>

This form must be submitted to the course coordinator via email **within three days** after the Term Test has taken place.

If you miss a Term Test for any other valid reason, please consult with the course coordinator as soon as possible. The course coordinator will determine whether the reason given for a missed Term Test is valid in accordance with university policies. Also, the course coordinator may ask for any documentation required to verify the reason given.

Students who miss one Term Test for a valid reason (medical or otherwise) will not be permitted to write a make-up Term Test; rather, the weight of their Final Exam will be increased by 10%. (The weight of their remaining Term Test will be 25%).

Students who miss both Term Tests for valid reasons will not be permitted to write make-up Term Tests; rather, the weight of their Final Exam will be increased by 35%.

Students who miss a Term Test for any invalid reason will receive a grade of zero for that Term Test.

Assignments

The objective of the assignments in this course is four-fold: i) to encourage students to get outdoors and become more familiar with the native fauna of Ontario (or whatever part of the world students are currently living in); ii) to provide a relaxed platform in which students can explore the primary scientific literature; iii) to help students learn to engage with the general public about scientific research; and iv) to showcase for students that science is a creative discipline.

The instructions for each assignment are as follows:

1. Go outside and explore your neighbourhood, looking for a non-human animal. Photograph the animal and make a brief note of the location where the animal was found; then identify the animal (to species, as best as possible) using publicly-available resources from the internet. You should provide both the common and Latin name for your animal.
2. Find a published research article in the primary scientific literature (i.e., in a scientific journal) about your animal. Physiology-related articles are preferable, but not required.

At this point, you can choose from the two options below:

3. Make a 90-second (± 1 second) podcast explaining what the research described in the article found (i.e., what were the major results of the research) and, most importantly, why these findings are significant. In explaining the significance of the research findings, consider that the audience for this podcast is the general public, who contributed to this research through taxation and who are entitled to some justification of their financial expenditure. Submit your podcast, as well as the photograph and location of your animal and the reference for your research article, via Quercus.

4. Make a one-panel, hand-drawn colour cartoon that conveys the take-home message from the research in a humorous manner. You should include a brief caption below the cartoon that summarizes the major finding(s) of the research article (1-2 sentences at most) to give context to your cartoon. Such cartoons are often used by scientific journals (e.g., *Journal of Experimental Biology*) that have a broad readership in order to attract attention, so keep this in mind when making your cartoon. Take a photograph of your cartoon and submit it via Quercus, along with the photograph and location of your animal and the reference for your research article, via Quercus.

Evaluation:

Each assignment will either be accepted (5/5) or rejected (0/5). Assignments will be rejected for the following reasons:

- a. a component of the assignment is missing (e.g., the article reference was not provided)
- b. the animal in the photograph has been misidentified, or common or Latin names for the species were not provided
- c. the assignment does not meet the criteria outlined above (e.g., podcast is only 60 seconds long, cartoon is missing a caption)
- d. the quality of the assignment is below our expectations for a 2nd-year UTSC student

When an assignment is rejected, students will be permitted to revise and resubmit for reconsideration. **The deadline for such resubmitted assignments is one week following the rejection decision.** The TA will provide feedback so that the students understand how to improve their assignment so it can be accepted.

The University of Toronto is committed to supporting scholars who are black, indigenous, people of colour, female, and/or LGBTQ. One way to support such scholars is to highlight their excellent contributions to scientific research. For this reason, each assignment that highlights research conducted by individuals from underrepresented communities will receive additional marks (0.5%) that can be used to offset the weight of the Final Exam. That is to say, if all six of a student's assignments highlight research from individuals from underrepresented communities, their Final Exam will be worth only 32%.

To receive these additional marks:

The podcast or cartoon caption must mention the name of the individual(s) and to which underrepresented community(ies) they belong. These individuals must be authors on the paper being discussed in the podcast/cartoon, and can be undergraduate/graduate students, postdoctoral fellows, or faculty members. **Students must mention at least one biographical aspect for the individual in their podcast or cartoon caption.** In this regard, it may be worthwhile to reach out to the individual via email to let them know that you will be discussing their research in a podcast created for your coursework at UTSC and ask them if there is any information about themselves that they would be interested in sharing with the audience.

Students are encouraged to post their podcasts and cartoons to their social media accounts in order to share their work with others. For each submission deadline, the course instructor will post the best podcast and best cartoon to his personal social media accounts. **If your podcast or cartoon is selected but you would prefer not to have it posted, please let the course instructor know via email.**

Students may submit up to six assignments, each being worth 5% of their final grade. The deadlines for assignment submissions are **May 21, June 4, June 18, July 9, July 23, and Aug 6**. The weight of any unsubmitted or rejected assignments will be transferred to the Final Exam, so students are not required to submit a self-declaration of illness for missing assignment deadlines.

Students may complete the assignments alone or they may choose to work with a partner. When choosing to work with a partner, students must continue to work with their partner throughout the entire semester (unless they drop the course). Students must notify the course instructor of their decision to work with a partner *prior to* the first assignment deadline.

There are several free online programs available for creating high-quality podcasts. One such program is Audacity. Another one that might be particularly useful if you want to record audio from several people located remotely onto a single file is Cleanfeed.

The reason that the assignment asks for hand-drawn cartoons is because students have been asking for assignments that do not require screen time. Please be aware that we will not be assessing the quality of your artwork *per se*, but rather the quality of your idea and your effort.

An example of this assignment is posted on Quercus for reference. The example features both a podcast and a cartoon so that students can see examples of both.

Final Exam

The Final Exam will be scheduled by the Registrar's Office (August 16-29) and will be worth 35% of the final grade (unless, for reasons stated above, it has a higher weight). It will be 3 hours and will cover all course material, though it will place emphasis on the material discussed since the last Term Test. It will have the same format as the Term Tests.

Accessibility Needs:

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

Academic Integrity:

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's *Code of Behaviour on Academic Matters* (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

- In papers and assignments:*
- using someone else's ideas or words without appropriate acknowledgement
 - submitting your own work in more than one course without the permission of the instructor
 - making up sources or facts
 - obtaining or providing unauthorized assistance on any assignment.
- On tests and exams:*
- using or possessing unauthorized aids;
 - looking at someone else's answers during an exam or test
 - misrepresenting your identity
- In academic work:*
- falsifying institutional documents or grades
 - falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. There are other offences covered under the Code, but these are the most common. ***Please respect these rules and the values that they protect.***

Copyright in Instructional Settings:

If a student wishes to audio-record, photograph, video-record, or otherwise reproduce lecture presentations, course notes, or other similar materials provided by instructors, he or she must obtain the instructor's written consent beforehand. Otherwise, all such reproduction is an

infringement of copyright and is absolutely prohibited. In the case of private use by students with disabilities, the instructor's consent will not be unreasonably withheld.