

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

Course Instructor: **Dr. Jason Brown**
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Office Hours:
Online via Microsoft Teams.
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 20 minutes; multiple students can attend together if desired.

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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 CHMA11H3

Exclusions: BIO270H

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

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

Evaluation:

Term Tests	35%	(25% best; 10% worst)
Assignments	30%*	(10 x 2.5% weekly questions; 5% reflection)
Final Exam	35%	

*For students enrolled in BIOB90, each assignment will be worth 2% (= 20% total), as BIOB90 is worth 10% of the final grade in this course.

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, solve problems, and evaluate hypotheses. 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. For some of the quiz questions (approx. 3 - 4 each week), I will be providing detailed, audio walk-throughs 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 Discord. To participate in these collaborative discussions, you must first download and register for Discord. It is highly recommended that you complete this download and registration process at least a few days before the first Term Test. A general server for the course has been created so you can familiarize yourself with Discord, if necessary; see the link below. You can also use this general server to contact other students in the course, if desired.

<https://discord.gg/PV75ad9sSy>

Separate Discord servers will be established for each Term Test. Links to these Discord servers 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 self-declare your illness **within 48 hours** via Acorn. For instructions about how to self-declare an illness via Acorn, please consult the following resource:

<https://help.acorn.utoronto.ca/blog/ufags/how-do-i-declare-an-absence/>

If you miss a Term Test for any other valid reason, please send an email to the course instructor and course coordinator, jointly, 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 assignments for this course are based on three influences:

i) The “Extinction of Experience”, which is the notion that most of the students registered in this course live in an urban environment where they are disconnected from the vast majority of the animals that they are being taught about. [See Miller (2005), which is posted on Quercus, for more details.]

ii) The “Krogh Principle”, which is a philosophy that physiologists can utilize when deciding about the particular animal model on which to conduct their research studies. [See Lindstedt (2014), which is posted on Quercus, for more details.] [**This is required reading.**]

iii) The “Flipped Exam” model, which helps students to develop their scientific curiosity through discovery-based group activities. [See Lujan et al. 2014, posted on Quercus, for more details.]

Structure of each assignment:

Students will be randomly placed into groups of approximately 5 people; group memberships may change as students add/drop the course during the first couple of weeks. Each group will have their own site on Quercus, which can be accessed via q.utoronto.ca/groups. These group Quercus sites can be used for all assignment-related discussion, or groups can simply use their group Quercus site to exchange contact information and decide upon a different platform for assignment-related discussion.

Beginning in Week 3, and in every week thereafter, an assignment question will be posted on Quercus each Monday (no later than 9am). The question will feature a research problem and a list of five species. Each group will have until Friday at 5pm to decide in which of the five species the research problem can best be studied (according to the course instructor, who, for the purpose of this assignment, shall be considered the “expert”). In attempting to answer the question, students may consult with any resources available. ***Each group must arrive at a consensus answer, which will be submitted via Quercus. Only one member of the group is required to submit this consensus answer as it will be automatically linked to all other members of the group.***

At 5pm on Friday, the course instructor’s “expert” answer will be revealed and no further submissions will be permitted.

If a group’s submitted answer matches the “expert” answer, then each member of the group will receive 100% for that week’s assignment.

If the group’s submitted answer does not match the “expert” answer, then, by no later than the following Friday at 5pm, the group may submit a written justification for their chosen species. **This justification can be no longer than 250 words.** One of the teaching assistants will read this written justification, and, if they are compelled by the group’s argument, then they will assign the group 100% for the week’s assignment; however, if the teaching assistant is not compelled by the group’s argument, then the group’s grade will be assigned 25% for that week’s assignment.

If a group does not submit an answer for a particular week’s assignment, then their grade will be 0%. No written justification can be provided if the group did not provide an initial answer to the question by the deadline. If a group does not submit a written justification for their non-matching answer, then their grade will be 0%.

Collaboration Reflection:

The primary reason that students are working in groups for this assignment is to encourage the development of teamwork and collaboration skills.

By the last day to submit term assignments (Dec. 6th), each group must submit a brief written document (**no longer than 500 words**) outlining the approach that their group took with respect to deriving a consensus answer to each weekly question. The purpose of this document is to encourage each group to reflect upon whether their approach to completing these assignments was successful or not and why. Actively considering the strengths and weaknesses of the group’s

approach to collaborative assignment completion will make students more aware of how to approach future group projects, both inside and outside UTSC.

NOTE: The weight of any portion of the assignment grade that is not earned by a group will be transferred to their Final Exam. For this reason, groups will not be provided with extensions for missed deadlines, and there is no need to submit medical documentation for missed assignment deadlines.

Final Exam

The Final Exam will be scheduled by the Registrar's Office (December 9-21) 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.