

University of Toronto Scarborough – Department of Biological Sciences  
**BIOB34 – Animal Physiology – Fall 2019**

**Course Instructor:** **Dr. Jason Brown**  
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Office: SW542 (for now)  
Office Hours: Thursdays 1:30-4:30pm; Fridays 8:30-11:30am  
\*\*I will also be available for questions outside of the  
lecture hall immediately following class

**Course Coordinator:** **Jennifer Campbell**  
Email: jacampbell@utsc.utoronto.ca  
Office: SW421D  
Office Hours: Mondays 10-11am; Tuesdays 2-3pm;  
Wednesdays 11am-noon; Thursdays 2-3pm  
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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 CHMA10H3 and CHMA11H3

**Exclusions:** (BIOB30H3), BIO270H, BIO204H

**Lectures:** Tuesdays and Thursdays, 9:10-10am, AC223

Tentative Lecture Topics:

- |                                    |                            |
|------------------------------------|----------------------------|
| 1 – What are Animals?              | 5 – Respiratory Physiology |
| 2 – Metabolism                     | 6 – Nervous Physiology     |
| 3 – Thermal Physiology             | 7 – Nitrogen Excretion     |
| 4 – Feeding & Digestive Physiology | 8 – Osmoregulation         |

Lecture notes will be posted (in PowerPoint format only) on Quercus at least 24 hours before each lecture. NOTE: I reserve the right to make changes to the lecture notes after they are posted.

**Tutorials:** Thursdays 5:10-7pm, AC223

NOTE: This tutorial slot is shared with BIOB10 and BIOB50, and will also be used for the Biology Integrative Research Poster Project.

Tutorial Schedule for BIOB34:

September 19 – Integrative Research Poster Project (Group Meeting/Presentation re: Collaboration)

**September 26 – BIOB34 (1<sup>st</sup> Tutorial)**

October 3 – Integrative Research Poster Project (Open Group Work Session)

October 31 – Integrative Research Poster Project (Open Group Work Session)

**November 7 – BIOB34 (2<sup>nd</sup> Tutorial)**

November 14 – Integrative Research Poster Project (Poster Presentation Rehearsal and Feedback)

November 21 – Integrative Research Poster Project (Open Group Work Session)

November 29 – Integrative Research Poster Project (***Presentation Day!***)

**Textbook:** There is no required textbook for this course; however, in my experience, many students enjoy having a textbook to supplement their lecture notes. If you so desire, I would recommend the following textbook, which is available at the UTSC Bookstore:

*Animal Physiology*, 4<sup>th</sup> edition, 2016, by R.W. Hill et al.

I will post suggested readings, where applicable, from this textbook; however, this textbook may discuss material not covered in class, and I may discuss material in class not covered by the textbook. ***You are only responsible for the material covered in class.***

**Evaluation:**

Term Tests	35%	(25% best; 10% worst)
Tutorial #1	10%	(5% for part I; 5% for part II)
Tutorial #2	10%	(5% for part I; 5% for part II)
Biology Integrative Research Poster Project	10%	
Final Exam	35%	

## Important Notes Regarding Evaluations:

### Term Tests

There are two Term Tests in this course, which are held outside of class time. 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 in class and on Quercus. Term Tests will be 2 hours and will comprise of multiple-choice questions only. Students will have choice with regards to which questions they answer (e.g., answer 24 of 30 multiple choice questions). **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 (preferred).*

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 detailed UTSC Medical Certificate filled out by the physician who saw you on the day of the Term Test. This note must be submitted to the course coordinator **within three days** after the Term Test, whether in person or via email. Other medical notes will not be accepted, and if the UTSC Medical Certificate is not completed to the satisfaction of the course coordinator, it may be refused. The UTSC Medical Certificate can be found via the following link:

[http://www.utsc.utoronto.ca/~registrar/resources/pdf\\_general/UTSCmedicalcertificate.pdf](http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf).

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.

### **Tutorial Assignments**

The tutorials in this course are based on the C.R.E.A.T.E method, which is a novel pedagogical approach for teaching undergraduate students how to read and analyze primary research articles, as well as formulate their own research questions. (For more information, check out Dr. Sally Hoskins' paper on Quercus.) Be aware, then, that the objective the tutorials in this course is to encourage scientific skill development, not to reinforce the lecture content.

Both tutorials will have the same format:

Prior to arriving at the tutorial, students will find and download a recently-published (i.e., 2014 or later) primary journal article (i.e., not a review article, not a magazine/newspaper article) that describes an investigation into some aspect of the physiology of an animal species. (If you need assistance with finding primary journal articles, feel free to contact the course instructor, teaching assistants, or Sarah Guay [sarah.guay@utoronto.ca], who is the research librarian for Biological Sciences.)

During the first hour of the tutorial, students will find a partner and decide which of their papers they would like to utilize for the tutorial session. Then, they will grab a sheet of ledger-size paper (which will be provided) and divide it into four sections as indicated on the projector screen. In the first section, students will write (in their own words) the principle research question that their chosen paper is addressing. In the second section, students will make a drawing that illustrates how the researchers went about answering the research question posed (i.e., a summary of the pertinent methodology and experimental design). In the third section, students will construct one figure that summarizes the data presented in the study. In the final section, students will write (in their own words) the answer to the research question based on their interpretation of the data illustrated.

During the second hour of the tutorial, each pair of students will find another pair of students with whom they will work to complete the remainder of the tutorial. They will grab another sheet of ledger-size paper and divide it into four sections as indicated on the projector screen. In the first section, one pair of students will copy down the answer to their research question from the first part of the tutorial. In the second section, the other pair of students will copy down the answer to their research question from the first part of the tutorial. In the third section, the students will write down a **novel** research question that emerges from the two answers from the previous sections. In doing so, the students are seeking to integrate two pieces of disparate knowledge to formulate a new avenue of study. In the final section, students will make a drawing that illustrates an experiment that could be performed to determine the answer to their novel research question.

Students must submit their completed assignments by the end of the tutorial. Students should ensure that their name and student number are written at the top of the tutorial assignments. Tutorial assignments will be graded on a satisfactory/unsatisfactory basis. If the assignment is

deemed satisfactory, students will receive 100%; if the assignment is deemed unsatisfactory, students will receive 0%. Any unsatisfactory assignments will be available for pick-up in the course instructor's office, along with feedback from the Teaching Assistant who evaluated the assignment. Students receiving an unsatisfactory grade will be permitted to revise their assignment in accordance with the feedback provided, but such revisions must be completed on their own time. Resubmitted assignments will be regraded by the Teaching Assistant who evaluated the original submission and must be submitted before the last day of classes (Monday, December 2); if they are not resubmitted by this deadline, then students will receive zero.

Students who miss a tutorial session should submit a UTSC Self-Declaration of Illness Form, which can be found at the link below, to the course coordinator as soon as possible:

[https://www.utoronto.ca/biosci/sites/utoronto.ca/biosci/files/u26/Self%20Declaration%20of%20Student%20Illness\\_0.pdf](https://www.utoronto.ca/biosci/sites/utoronto.ca/biosci/files/u26/Self%20Declaration%20of%20Student%20Illness_0.pdf)

There are no makeups for missed tutorial sessions. The weight of any missed tutorials will be shifted to the Final Exam.

### **Biology Integrative Research Poster Project**

All students enrolled in BIOB34 (as well as BIOB10 and BIOB50) are automatically enrolled in the Biology Integrative Research Poster Project. There is a separate Quercus site for this project, which students should consult. The details of this project are outlined in a separate syllabus posted on this Quercus site, and there is also a video which outlines the motivation and objectives for this project, as well as key project details.

### **Final Exam**

The Final Exam will be scheduled by the Registrar's office (December 6-21) 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](mailto: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.