

University of Toronto Scarborough – Department of Biological Sciences  
**BIOC32 – Human Physiology I – Fall 2020**

**Course Instructor:** **Dr. Jason Brown**  
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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

**Course Coordinator:** **Jennifer Campbell**  
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**Course Description:** An introduction to human physiology covering the function of neurons, the brain, hormones, and our immune systems in both healthy and diseased states.

**Prerequisites:** BIOB34H3 or NROB60H3

**Exclusions:** (BIOB30H3), PSL300H

**Lectures:** *This is an online asynchronous course.* Approximately two lecture hours will be recorded each week and made available through Quercus in .mp4 format. Lectures notes (in PowerPoint format) will be made available at the same time.

Tentative Lecture Topics:

- |  |                                     |
|--|-------------------------------------|
| 1 – Immunity   | 6 – Cerebral Cortex & Limbic System |
| 2 – Organization & Cells of the Nervous System       | 7 – Hearing                         |
| 3 – The Electrophysiology of Neurons                 | 8 – Skeletal Muscle                 |
| 4 – Synapses, Neurotransmitters, and Neural Circuits | 9 – Control of Body Movements       |
| 5 – Brain: Development & Protective Elements         |                                     |

**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:

*Vander's Human Physiology*, 15<sup>th</sup> ed., Widmaier 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.**

This textbook provides you access to McGraw-Hill Connect®, which is an online learning platform featuring a smart textbook and additional practice questions that may help you to better grasp the fundamental course content.

### **Evaluation:**

*If you are applying grades for BIOC90 to this course:*

Term Tests	33%	(23% best; 10% worst)
Short Communications	20%	(10% x 2 submissions)
BIOC90 Integrative Multimedia Documentary Project	10%	
Weekly Quizzes	2%	
Final Exam	35%	

*If you are not applying grades for BIOC90 to this course:*

Term Tests	33%	(23% best; 10% worst)
Short Communications	30%	(10% x 3 submissions)
Weekly Quizzes	2%	
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. 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, and to encourage students to stay up-to-date with the course material, weekly quizzes will be posted on Quercus. Students who complete all the weekly quizzes on time (i.e., by the end of the week following the lecture) will receive 2% towards their final course grade. Students who do not complete all the weekly quizzes on time will see the value of their final exam increase by 2%, allowing them to still earn those marks. Students are strongly encouraged to discuss these quizzes with the course instructor when they encounter any difficulties, either by email or during office hours.

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 note 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 23%).

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 33%.

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

### **Short Communications**

A Short Communication is a concise article designed to disseminate novel research findings as quickly as possible. The methods and results are the primary focus of a short communication, while the introduction and discussion are kept brief, providing just enough information for the reader to understand the basis for the experiment and the key significance of the results.

Short Communications will be completed in **groups of 3 or 4**. Groups will be randomly formed during the third week of classes (i.e., after the date for adding courses has passed). You should be able to see and contact your group members by going to [q.utoronto.ca/groups](http://q.utoronto.ca/groups) and clicking on “Short Communication Group x”. Use the “Discussions” tab to make initial contact with your group members.

To complete the Short Communications, students will use HumMod (available for free at [hummod.org](http://hummod.org); only available for Windows; if you do not have access to a Windows computer, please let the course instructor know within the first week of the course so that you can be grouped with students who do have access to a Windows computer). A tutorial about using HumMod will be posted on Quercus.

Each Short Communication will be completed in two phases:

Phase 1: Students will derive a **novel** research question and a hypothesis. They will write a brief introduction that permits the reader to understand the novelty and importance of the research question and the rationale for the hypothesis. They will also write a methods section that outlines the experimental design that will be used to test their hypothesis, including a description of the research subjects, as well as a description of any measurements to be made, including how and when these measurements will be made. **The maximum length of Phase 1 is 450 words.** Students will submit this part of the Short Communication via Quercus for approval by the course instructor or teaching assistants. **Students must get this part of their Short Communication approved before they can complete the second part.**

For Phase 1, the course instructor or teaching assistants will be looking for:

- a research question for which the answer is not already well established in the scientific literature and for which knowledge of the answer would be important to humankind
- a hypothesis that seems reasonable in light of the background information provided in the introduction
- at least two cited references from primary scientific articles
- a well-designed experiment with appropriate controls and research subjects
- sufficient detail provided in the methods so that they could execute the experiment themselves

For Phase 1, students will receive 5/5 once their work has been approved by the course instructor or teaching assistant; if their work requires revision, they will receive feedback and will have an opportunity to resubmit. There will be no limits placed on the number of resubmissions possible for this part of the Short Communication, except that students must meet the submission deadlines for Phase 2 (see below). Please allow up to 72 hours for your Phase 1 (re)submission to be evaluated.

Phase 2: Students will test their hypothesis by executing their experiment using HumMod. Subsequently, students will add results (in the form of tables/figures and some text), as well as their interpretation of the results, to the introduction and methods they already wrote in Phase 1. **The maximum length of Phase 2 is 450 words and 2 figures (or tables); therefore, the total length of the Short Communication cannot exceed 900 words.** Figure and tables should be properly constructed using Excel (or similar software), not simply copy-and-pasted from HumMod. Please consult the following link for tips on making figures and tables appropriate for scientific publications:

<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833>

<https://www.editage.com/insights/tips-on-effective-use-of-tables-and-figures-in-research-papers?page=0%2C1>

NOTE: References cited do not count towards the word limit. References can be formatted in any manner; just be consistent.

For Phase 2, the course instructor or teaching assistants will be looking for:

- figures and tables that are easy to understand and formatted in a manner appropriate for a scientific publication
- brief text describing the major results
- if results support the hypothesis:
  - o an explanation of the significance of the research
  - o a discussion of future directions
- if results do not support the hypothesis:
  - o an explanation of the significance of the research
  - o an explanation for why the results were not as expected
  - o a discussion of the study's limitations
- at least two cited references

For Phase 2, students will be evaluated as follows:

a) Accepted. 5/5. No further action required.

b) Accepted with Revisions. In this case, students have two options: i) They can do nothing and receive a grade of 2.5/5, or ii) they can submit a revised copy of their Phase 2 (within one week after receiving their grading decision), using the feedback provided by the course instructor or TA to improve their work. If their revised short communication is accepted following revisions, they will receive 5/5; if it is not, they will receive 2.5/5. NOTE: Students will be allowed a **maximum** of two revisions for Phase 2 of each Short Communication. If they cannot successfully revise the Phase 2 portion of the Short Communication after two attempts, they will receive 2.5/5.

c) Rejected. In this case, students have two options: i) They can do nothing and receive a grade of 1/5, or ii) they can submit a revised copy of their Short Communication (within one week after receiving their grading decision), using the feedback provided by the course instructor or TA to improve their work. If their revised short communication is accepted following revisions, they will receive 5/5; if it is not, they will receive 1/5. NOTE: Students will be allowed a **maximum** of two revisions for the Phase 2 portion of each Short Communication. If they cannot successfully revise their Short Communication after two attempts, they will receive 1/5.

Students will submit three Short Communications (unless they are applying BIOC90 to this course, in which case they will only submit two Short Communications). The due dates for each Short Communication (i.e., initial Phase 2 submission) are as follows: **October 9<sup>th</sup> at 5pm, October 30<sup>th</sup> at 5pm, and November 20<sup>th</sup> at 5pm**. Short Communications submitted after the deadlines will be rejected, and no extensions will be granted even if a Self-Declaration of Illness is submitted.

### **BIOC90 Integrative Multimedia Documentary Project**

Students enrolled in BIOC90 should visit the BIOC90 Quercus course page for information about this project. Their grade on the documentary project counts for 10% of their final grade in this course, if they choose to apply it to this course.

**Final Exam**

The Final Exam will be scheduled by the Registrar's Office (December 10-22 [including Sundays]) 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 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.