

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

**Course Coordinator:**

**Laura Shelly**

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**Teaching Assistants:**

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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.* 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 – Immunity
- 2 – Reproduction
- 3 – Organization & Cells of the Nervous System
- 4 – The Electrophysiology of Neurons
- 5 – Synapses, Neurotransmitters, and Neural Circuits
- 6 – Hearing
- 7 – Skeletal Muscle
- 8 – Control of Body Movements

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

## Evaluation:

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

Term Tests	35%	(25% best; 10% worst)
Short Communications	20%	(10% x 2 submissions)
BIOC90 Integrative Multimedia Documentary Project	10%	
Final Exam	35%	

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

Term Tests	35%	(25% best; 10% worst)
Short Communications	20%	(10% x 2 submissions)
Audio Interview	10%	
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. 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. You can also use this general server to contact other students in the course, if desired.

<https://discord.gg/HQp8CmK8fe>

Separate Discord servers will be established for each 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/uFAQs/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.

### **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 4 or 5**. Groups will be randomly formed at the start of the course; group memberships may change as students add/drop the course during the first couple of weeks. You should be able to contact your group members by going to **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; only available for Windows; if no one in your group has access to a Windows

computer, please let the course instructor know as soon as possible). A tutorial about using HumMod will be posted on Quercus.

Each Short Communication will be completed in three 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.

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

**The maximum length of Phase 1 is 500 words.** [NOTE: References cited do not count towards the word limit. References can be formatted in any manner; just be consistent.]

For Phase 1, students will receive 2/2 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. **Students cannot begin Phase 2 until Phase 1 has been approved.**

Phase 2: Students will 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 2 is 500 words.**[NOTE: Students should add Phase 2 to their existing Phase 1 document so that the course instructor or teaching assistant can easily reference it.]

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

- 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 2, students will receive 3/3 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. **Students cannot begin Phase 3 until Phase 2 has been approved.**

Phase 3: 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 Phases 1

and 2. **The maximum length of Phase 3 is 500 words and 2 figures (or tables); therefore, the total length of the Short Communication cannot exceed 1500 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>

For Phase 3, 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 (not including the references from Phase 1)

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For Phase 3, 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.

Students will complete two Short Communications. The first Short Communication must be fully completed by **Friday, October 22nd at 5pm**; that is, any phases of the first Short Communication submitted after this date will not be evaluated. The second Short Communication must be fully completed by **Friday, November 19th at 5pm**; that is, any phases of the second Short Communication submitted after this date will not be evaluated. Please allow up to 72 hours after submission for the course instructor or teaching assistants to evaluate your submissions.

### **Audio Interview**

Disseminating research findings to the general public, which is a necessary part of science since most research is funded through taxation, is often accomplished in an audio format (i.e., radio, podcasts). Check out the links below for some examples:

CBC's Quirks & Quarks

[https://www.cbc.ca/listen/live-radio/1-51-quirks-and-quarks?cmp=DM\\_SEM\\_Listen\\_Titles](https://www.cbc.ca/listen/live-radio/1-51-quirks-and-quarks?cmp=DM_SEM_Listen_Titles)

Science Friday

<https://www.sciencefriday.com/science-friday-podcasts/>

For this assignment, each group will be paired with another group. The groups will provide each other with a copy of their favourite Short Communication. The groups should read the Short Communication they are provided with and prepare a list of interview questions that they could ask the other group. Then, the two groups should arrange a time to conduct and record their interviews. Interview should be approximately 5 minutes in length.

Groups can utilize any convenient software for recording their interviews, but Cleanfeed (<https://cleanfeed.net/>) is recommended because it allows for multiple people to record audio into a single file for free.

Each group is responsible for submitting the interview for which they asked the questions. These interviews must be submitted no later than **Monday, December 6th at 5pm**. The teaching assistants will listen to each interview, and, if they are satisfied by the quality of the questions asked and find the interviewers to be engaging, they will give 10/10 for this assignment. If not, then they will consult with the course instructor before assigning an appropriate grade.

[NOTE: Students who have chosen to apply their grade for BIOC90 to this course are not required to participate in the Interview assignment.]

### **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. [See “Evaluation” above.]

### **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 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.