BIOC10H: Proteins from birth to death

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Course Syllabus
Winter 2021

Course description (the boring academic calendar version):

This course builds on fundamental cell biological concepts using primary literature. This course will examine specific organelles and their functions in protein biogenesis, modification, trafficking and quality control within eukaryotic cells. The experimental basis of knowledge will be emphasized, and students will be introduced to hypothesis-driven research in cell biology. **Pre-requisites: *BIOB11H***

Course description (what I really want you to know):

Learning to critically read a scientific paper can never be a solo activity – it requires robust and animated discussions with peers guided by your instructor and TA, as you build your knowledge of cell biology. That's a big goal of this course. This past year there was more public discourse around the unjust inequities in our society (including the scientific community). You will work on assignments in this course (wiki page for scientists underrepresented in cell & molecular biology; a discussion board post on making biology course curricula more inclusive) in which you will engage in actions that promote inclusion of all people in the science. In our busy lives, we don't often pause to actually reflect on how we feel and on our academic journey – I've created a writing prompts assignment that will allow you some space to do this (and actually give you credit for it…because thinking about your personal growth is incredibly important). Getting excited yet? Alright, here's one more fact: you will make art in this course, yes, art! It will be your chance to work with a group of your peers to bust a myth that has no evidence in science and in the process hone skills to communicate biology to a lay audience. These are strange times, and while we will acknowledge and share how we are all coping, we will also have some serious fun learning together. I can't wait to meet you all next week – welcome to the course!

Time and logistics of weekly synchronous activities:

Lectures: WEDNESDAYS, 3PM – 5PM
Tutorial sessions: MONDAYS, 3PM – 4PM
Office hours: MONDAYS, 1-2pm

Teaching team:

I want to know every student in this course, and I am hopeful for some really interesting and informative conversations in the weeks ahead. Get in touch.
Instructor: Dr. Aarthi Ashok
aarthi.ashok@utoronto.ca
Your TA, Jerrica, is a graduate student in the department of Biological Sciences and is here to expertly support your learning in this course. Don't hesitate to contact her either.
TA: Jerrica Jamison
Email: jerrica.jamison@mail.utoronto.ca

Online course resources:

Login and access the Quercus site for BIOD29H for Winter 2021. I know Quercus isn't all that exciting, but that doesn't mean the contents relevant to this course won't be. Check it out. Often! The site will contain:
-The course syllabus – including a course description & schedule.
-Important announcement regarding lectures, tutorials or course content – **please check this site regularly.**
-Lecture outlines (slides) may be posted <u>after</u> some of the classes to provide an overview of what was discussed in each class. **Please note that you are responsible for taking your own notes during the class.**
-Primary literature assignments (posted prior to each week of discussions).

Evaluation:

It may seem like a long list, but you will have so much fun with these (trust me ☺)! These assessments will challenge you, but they are designed to be fair and will allow you to feel a sense of pride for doing the hard work of learning.

1. **Contribution to tutorials = 8%**

2. **Questions and In-class participation = 7%**
   This entails answering questions voluntarily or when called upon to interact in the class, including questions asked/turned in following each group's presentation in Weeks 9 & 10.

3. **In-class (Lec 3) peer-review process group assignment = 4%**

4. **Midterm exam = 15%** - Week 7, Wednesday, March 10th
   -short answer or data interpretation style questions on papers from Weeks 2-6
   -more details in class and on Quercus announcements

5. **Student (group) presentations** on Wiki style assignment - Weeks 9 & 10 **= 20%** = the final page created (**10%**) + the presentation in class (**9%**) + workload assessment (1%). – multiple deadlines (please see separate timelines and deadlines document for this assignment)

6. **Writing prompts activity = 3%**
   Reflect and write a response to a prompt. There will be 6 prompts and they will be available on Quercus one week before they are due. Due dates will be Fridays in Weeks 1, 2, 3, 5, 6 and Thursday of 11 before 5pm.

7. **Discussion board post = 5%**

The scientific community benefits from the participation and perspectives of all people, but the culture of science can sometimes be very unwelcoming to some individuals, due to discriminatory practices with respect to ethnic origin, gender identity or disabilities. Hence, the face of the scientific community does not accurately reflect the diversity of the population. It is important that we implement changes that will allow us to address these systemic inequities. This assignment asks that you reflect on this topic, seek out some published literature of interest and make one detailed and well cited discussion board post (your post must reference at least 2 published journal articles on the topic) in which you provide one concrete way by which we can improve biology curricula through incorporation of a strategy that promotes equity, diversity and inclusion. Here's an editorial that captures the essence of what is on my mind as I try to design this assignment:
https://www.aacu.org/diversitydemocracy/2016/winter/editor
-all posts need to be unique ideas (no repeats)
-you can make this post anytime in the first 5 weeks of the course. Deadline = Wednesday, Feb 10th before 5pm.

8. **Submit a question and post-discussion reflection** on invited speaker presentation in Tutorial 11 **= 3%** - deadline to submit a question for the speaker = Thursday, March 25th before 5pm (submission on Quercus) – reflection completed after presentation - Monday, March 29th before 5pm (submission on Quercus)

9. **Art & Biology project and presentation** in Week 11 = **15%** - multiple deadlines (please consult separate document on this assignment); oral presentation on Wednesday, March 29th 3-5pm (all groups).

10. **Final exam = 20%** - Could include:

-answer questions on a recent paper of relevance to the course
-short answer questions on papers covered in the course
-more details in class and on Quercus announcements

Course Schedule:

Week	Lec/Tut #	Date	Topic	Details/ Papers
1	Tut 1	Jan 11	Introduction to tutorial expectations	Jigsaw model & assignment of groups
1	Lec 1	Jan 13	Course introduction	Syllabus & Schedule
			Reading Scientific Literature	Types of scientific literature; how to dissect a paper
2	Tut 2	Jan 18	(Re-) Introduction to tutorial expectations & group compositions	5 mins
			Student group learning	Levine et. al., 2005
2	Lec 2	Jan 20	Introduction to assigned paper	Secretory pathway & signal sequences
			Protein import into the early secretory pathway	Levine et. al., 2005
3	Tut 3	Jan 25	Art & Biology project expectations	Introduction & expectations (5 mins) El Jones, UTSC Writer-in-Residence, presentation with Q&A (30 mins)
			Introduction to Wiki assignment & presentations	Guidelines on choosing topic/scientist; presentation expectations (10 mins)
3	Lec 3	Jan 27	Scientific publishing: the peer-review process	Modeling peer review activity
			Introduction to Lec 4	Protein quality control (ERAD) & proteasomal degradation
4	Tut 4	Feb 1	Student group learning	Zhang et. al., 2017
4	Lec 4	Feb 3	Understanding the components of the ubiquitin-proteasome system	Zhang et. al., 2017
			Introduction to Lec 5	The ER membrane and retrograde transport
5	Tut 5	Feb 8	Student group learning	Eshraghi et. al., 2014
5	Lec 5	Feb 10	Modes of entry into the ER	Eshraghi et. al., 2014
			Introduction to Lec 6	Unfolded protein response
			Reading Week	
6	Tut 6	Feb 22	Student group learning	Lin et. al., 2007
6	Lec 6	Feb 24	UPR & cell fate decisions	Lin et. al., 2007
			Wiki page drafts are due	
7	Tut 7	Mar 1	Midterm and presentations prep	Questions about midterm exam or presentations Group presentation days assigned
7	Lec 7	Mar 3	Project updates by group	Art & Biology drafts due Instructor provides feedback on wiki page drafts

8	Tut 8	Mar 8	Q&A for Wiki presentation	Groups work together to finalize their presentations
8	Lec 8	Mar 10	**Midterm test**	Content of weeks 2-6 tested
9	Tut 9	Mar 15	Presentations: Groups TBD	
9	Lec 9	Mar 17	Presentations: Groups TBD	
10	Tut 10	Mar 22	Presentations: Groups TBD	
10	Lec 10	Mar 24	Presentations: Groups TBD	Submit question for invited speaker presentation
11	Tut 11	Mar 29	Invited speaker paper presentation	Reflection on this presentation due
11	Lec 11	Mar 31	Art & Biology project presentations	Final critiques on student projects
12	Tut 12	Apr 5	Student group learning	Karch et. al., 2017
12	Lec 12	Apr 7	Cell death pathways	Karch et. al., 2017
			Course summary	Final exam expectations

Special Notes:

What if I miss a deadline?

Deadlines are firm and designed to help you learn how to manage your time effectively.
The penalty for missing submission deadlines or any of the various assignment drafts and deliverables is simply a loss of credit for that work – it is not always possible to offer makeup possibilities.
However, life happens and so, if there are extenuating circumstances at play, get in touch with me prior to missing any deadlines and we will discuss the issue. If you wish to use the self-declaration of illness forms or have questions about using them, please contact Jennifer Campbell (jac.campbell@utoronto.ca), in our Biology admin office. Note that if you use Acorn or e-service to declare an illness, you must also email Jennifer Campbell (jac.campbell@utoronto.ca) in order for us use the departmental verification process.

What if I miss an exam?

If you miss the midterm exam due to a medical illness, you will need to provide a UTSC medical certificate (http://www.utsc.utoronto.ca/registrar/sites/utsc.utoronto.ca.registrar/files/resource-files/UTSCmedicalcertificate.pdf) within 48 hours of a missed exam, if you wish to be considered for a potential make up exam. Medical notes must be submitted via email to both Jennifer Campbell (jac.campbell@utoronto.ca) and myself (aarthi.ashok@utoronto.ca). A single makeup midterm exam may be offered to students who provide significant evidence of extenuating circumstances/illness. Note that the structure of the makeup midterm will differ significantly from the normal midterm for the course and will likely be an oral exam or a written essay style exam, as determined by the instructor.
If you miss the final exam due to a medical illness, you need to submit a petition via the registrar's office and provide them with documentation. The course instructor is not responsible for the scheduling of missed final exams and so can't really help you with that.

What if I miss the weekly synchronous sessions?

Remember that the goal of these sessions is to ensure participatory learning; learning skills to dissect primary literature requires a group and peer context; hence these are essential. Note that participation in synchronous sessions is an important and **graded element** of this course. There is no formal makeup opportunity for missed sessions but do email me to make sure that you get the support you need to learn effectively in this course.

Important course policies:

Equity, Diversity & Inclusion:

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of

our community can express themselves, engage with each other, and respect one another's differences. This is especially true of our discussion board posts, groupwork interactions and online paper discussion sessions. U of T does not condone discrimination or harassment against any persons or communities. *[https://teaching.utoronto.ca/wp-contenUuploads/2020/04/Creating-an-lnclusive-Online-Environment.pdf]*
The University of Toronto strives to provide a family-friendly environment. You may wish to inform me if you are a student with family responsibilities. If you are a student parent or have family responsibilities, you also may wish to visit the Family Care Office website at familycare.utoronto.ca. *[Family Care Office at the University of Toronto]*

Notification of Recording of Online Course Meetings & Copyright Considerations:

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. **Do not** download, copy, or share any course or student materials or videos without the explicit permission of the instructor. For questions about the recording and use of videos in which you appear, please contact the instructor. *[Office of the Freedom of Information and Protection of Privacy at the University of Toronto]*

The unauthorised use of any form of device to audiotape, photograph, video-record or otherwise reproduce lectures, course notes or teaching materials provided by instructors is covered by the Canadian Copyright Act and is prohibited. Students must obtain prior written consent to such recording. *[Provostial guidelines on the Appropriate Use of Information and Communication Technology]*

Accessibility Needs:

Students with diverse learning 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. AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course. [*The Centre for Teaching and Learning, UTSC*]

Academic Integrity:

[From The Centre for Teaching and Learning, UTSC]: Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensure 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* outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm). All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters and could have serious consequences for students including suspension or expulsion from the university. Important links:
General info site: https://www.academicintegrity.utoronto.ca/
FAQs about academic integrity: https://www.utsc.utoronto.ca/vpdean/faq-0
Information Literacy: https://www.academicintegrity.utoronto.ca/smart-strategies/information-literacy-and-academic-integrity/
Citations, Quoting and paraphrasing: https://www.academicintegrity.utoronto.ca/smart-strategies/citations-quoting-and-paraphrasing/
Group work and sharing work with friends: https://www.academicintegrity.utoronto.ca/smart-strategies/group-work/
Please respect these rules and the values that the Code seeks to protect.

Turnitin (Plagiarism Detection Software):

Normally, students will be required to submit their coursework to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The

terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site. [*The Centre for Teaching and Learning, UTSC*]

Here's an academic checklist to use for all assignments in this course. [*Centre for Teaching Support and Innovation]*

Course code: _____

Assignment title: _____

Instructor's name: _____

I, _____, affirm that this assignment represents entirely my own efforts.

I confirm that:

__ I have acknowledged the use of another's ideas with accurate citations.

__ If I used the words of another (e.g., author, instructor, information source), I have acknowledged this with quotation marks (or appropriate indentation) and proper citation.

__ When paraphrasing the work of others, I put the idea into my own words and did not just change a few words or rearrange the sentence structure

__ I have checked my work against my notes to be sure I have correctly referenced all direct quotes or borrowed ideas.

__ My bibliography includes only the sources used to complete this assignment.

__ This is the first time I have submitted this assignment (in whole or in part) for credit.

__ Any proofreading by another was limited to indicating areas of concern which I then corrected myself.

__ This is the final version of my assignment and not a draft.

__ I have kept my work to myself and did not share answers/content with others, unless otherwise directed by my instructor.

__ I understand the consequences of violating the University's Academic Integrity policies as outlined in the Code of Behaviour on Academic Matters.

By submitting this form, I agree that the statements above are true. If I do not agree with the statements above, I will not submit my assignment and will consult the course instructor immediately.

Student name: _____

Signature: _____

Date: _____

Final note: These are unusual times and please know that the teaching team for BIOC10 will do what we can to support you. If you are feeling distressed, there are a variety of supports and resources available on campus. Start here: https://safety.utoronto.ca/