BIOC10H: Proteins from birth to death

Dr. Aarthi Ashok
Department of Biological Sciences, UTSC
Course Syllabus
Winter 2020

Course description:

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*
Recommended Preparation: *BIOC12H*
Enrollment limit: 50

Time and Location:

Lectures: WEDNESDAYS, 2PM – 4PM, BV 363
Tutorial sessions: MONDAYS, 3PM – 4PM, BV 363

Course staff:

Instructor: Dr. Aarthi Ashok
aashok@utsc.utoronto.ca
Office hours: Mondays, 2-3pm
Office location: SW521D

TA: Trisha Mahtani
Email: trisha.mahtani@mail.utoronto.ca

Online course resources:

Login and access the Quercus site for BIOC10H for Winter 2020. It contains:
-The course syllabus – including a course description & schedule.
-Contact information and office hours for the instructor & TA
-Important announcement regarding lectures, tutorials or course content – **please check this site regularly for any such announcements.**
-Lecture outlines (slides) for some broad discussion lectures may be posted after 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 assigned will be posted prior to each week of discussions.

Evaluation:

1. **Pop-quizzes** that are all multiple-choice/short-answer format worth – at any time in the course **= total value of 4%**
2. **In-class (Lec 2) peer-review process group assignment = 4%**
3. **Contribution to tutorials = 6%**
4. **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.
5. **Midterm exam = 22%**
   -short answer or data interpretation style questions on papers from Weeks 2-6. Exam will be in class in Week 7.
6. **Student (group) presentations** on Wiki style assignment - Weeks 9 & 10 **= 15%** = the final page created (9%) + the presentation in class (5%) + workload assessment (1%).
7. **Reflection** on invited speaker presentation in Tutorial 11 **= 2%**
8. **Art & Biology project and presentation** in Week 11 = **10%**
9. **Final exam = 30%**
   Could include any or all of the following:
   -answer 1 question out of 3 choices – essay style
   -answer questions on a recent paper of relevance to the course
   -short answer questions on papers covered in the course

Special Notes:

If you miss a class, tutorial or exam due to illness or an unavoidable personal conflict, you will need to provide a UTSC medical certificate to Jennifer Campbell in the Biology admin office (SW421D) and notify Dr. Ashok within 48 hours of the missed class/exam in order to not be penalized for any course evaluation components that may have occurred in your absence. Please note that makeup opportunities are not available for all course components and hence some components may need to re-weighted for some absences; the instructor will make this decision on a case by case basis.

Week	Lec/Tut #	Date	Topic	Details/ Papers
1	Tut 1	Jan 6	Introduction to tutorial expectations	Jigsaw model & assignment of groups
1	Lec 1	Jan 8	Course introduction	Syllabus & Schedule
			Reading Scientific Literature	Types of scientific literature; how to dissect a paper
2	Tut 2	Jan 13	(Re-) Introduction to tutorial expectations & group compositions	5 mins
			Introduction to student presentations in weeks 9 &10	Guidelines on choosing topic/scientist; presentation expectations (15 mins)
			Art & Biology project expectations	Introduction to project goals and expectations (30 mins).
2	Lec 2	Jan 15	Scientific publishing: the peer-review process	In-class peer-review activity and abstract critique activity
			Introduction to Lec 3	Secretory pathway & signal sequences
3	Tut 3	Jan 20	Student group learning	Levine et. al., 2005
3	Lec 3	Jan 22	Protein import into the early secretory pathway	Levine et. al., 2005
			Introduction to Lec 4	Protein quality control (ERAD) & proteasomal degradation
4	Tut 4	Jan 27	Student group learning	Zhang et. al., 2017
4	Lec 4	Jan 29	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 3	Student group learning	Eshraghi et. al., 2014
5	Lec 5	Feb 5	Modes of entry into the ER	Eshraghi et. al., 2014
			Introduction to Lec 6	Unfolded protein response
6	Tut 6	Feb 10	Student group learning	Lin et. al., 2007
6	Lec 6	Feb 12	UPR & cell fate decisions	Lin et. al., 2007
			Reading Week	
7	Tut 7	Feb 24	Group presentation days assigned	Questions about midterm exam or presentations
7	Lec 7	Feb 26	Art & Biology project drafts are due; Cool new cell biology techniques	Class discussion (paper TBD)
8	Tut 8	Mar 2	Q&A for Wiki presentation/paper	Groups work together to finalize their presentations
8	Lec 8	Mar 4	Midterm test	Content of weeks 2-6 tested
9	Tut 9	Mar 9	Presentations: Groups TBD	
9	Lec 9	Mar 11	Presentations: Groups TBD	
10	Tut 10	Mar 16	Presentations: Groups TBD	
10	Lec 10	Mar 18	Presentations: Groups TBD	

11	Tut 11	Mar 23	Invited speaker paper presentation	Reflective paper is based on this presentation
11	Lec 11	Mar 25	Art & Biology project presentations	Final critiques on student projects
12	Tut 12	Mar 30	Student group learning	Karch et. al., 2017
12	Lec 12	Apr 1	Cell death pathways	Karch et. al., 2017
			Course summary	Final exam expectations

Accessibility Needs:

(text provided by Centre for Teaching and Learning, UTSC)
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 Access*Ability* Services Office as soon as possible. I will work with you and Access*Ability* Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC Access*Ability* Services staff (located in SW302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

Academic Integrity:

(text provided by The Centre for Teaching and Learning, UTSC)
Please consult: http://www.utoronto.ca/academicintegrity/resourcesfor students.html. 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: **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. In this course, you will be required to submit written work such as drafts and final wiki assignment pages, to turnitin. ***Please respect these rules and the values that they protect.***

Special Notes:

- If you miss the midterm exam due to a medical illness, you will need to both notify the instructor as well as provide the department of Biological Science's course coordinator, Jennifer Campbell, with 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. Ms. Campbell's office is located in SW421D and can be reached via email: jacampbell@utsc.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.

• There is no makeup opportunity for a missed lecture or tutorial.

• If you are ill during the term, and this illness influences your ability to attend a asessed lecture or tutorial, you can submit a Self-Declaration of Student Illness form, indicating the days in which you were ill. This form is meant to take the place of the more typical medical form, and is available on the department's website: http://www.utsc.utoronto.ca/biosci.

Please note the following aspects related to this Self-Declaration of Student Illness form:

o Similar to the submission of a medical form, YOU ARE RESPONSIBLE for contacting the course coordinator (Jennifer Campbell; see contact information above) to make arrangements for an accommodation for your absence.

o You may use the Self-Declaration of Student Illness form ONLY for class absence and cannot be used for any missed term test or final exam in this course (or any other course).

o You may use the Self-Declaration of Student Illness form up to three times in this course. If you require an additional accommodation for a term assignment you must then use the standard Verification of Student Illness form.

o You must submit the Self-Declaration form within 3 days of a missed class.

o Please note that submitting a false Self-Declaration of Student Illness form constitutes academic misconduct and could lead to serious sanctions under the Code of Behaviour on Academic Matters.

o Please note that makeup opportunities are not available for all course components and hence some components may need to be re-weighted for some absences; the instructor will make this decision on a case by case basis.