BIOC10H: Proteins from birth to death

Dr. Aarthi Ashok
Department of Biological Sciences, UTSC
Course Syllabus
Winter 2018

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: *BIOB10 & BIOB11 (or BIOB10Y)*

Recommended Preparation: *BIOC12H*

Enrollment limit: 50

Time and Location:

Lectures: WEDNESDAYS, 2PM -4PM, MW 110
Tutorial sessions: MONDAYS, 3-4PM, HW214

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 blackboard site for BIOC10H for Winter 2018. 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 6%**
2. **In-class (Lec 2) peer-review process (group) and abstract review (individual) 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 = 20%**
   -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.

Course Schedule:

Week	Lec/Tut #	Date	Topic	Details/ Papers
1	Tut 1	Jan 8	Introduction to tutorial expectations	Jigsaw model & assignment of groups
1	Lec 1	Jan 10	Course introduction	Syllabus & Schedule
			Reading Scientific Literature	Types of scientific literature; how to dissect a paper
2	Tut 2	Jan 15	(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). Joint with students in VPSC55.
2	Lec 2	Jan 17	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 22	Student group learning	Levine et. al., 2005
3	Lec 3	Jan 24	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 29	Student group learning	Zhang et. al., 2017
4	Lec 4	Jan 31	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 5	Student group learning	Eshraghi et. al., 2014
5	Lec 5	Feb 7	Modes of entry into the ER	Eshraghi et. al., 2014
			Introduction to Lec 6	Unfolded protein response
6	Tut 6	Feb 12	Student group learning	Lin et. al., 2007
6	Lec 6	Feb 14	UPR & cell fate decisions	Lin et. al., 2007
			Reading Week	
7	Tut 7	Feb 26	Pick out group presentation days	Questions about midterm exam or presentations
7	Lec 7	Feb 28	Midterm test	Content of weeks 2-6 tested
8	Tut 8	Mar 5	Q&A for Wiki presentation/paper	Groups work together to finalize their presentations
8	Lec 8	Mar 7	Art & Biology project (Morphology and the Body)	Students in BIOC10H & VPSC55H work together on art project
9	Tut 9	Mar 12	Presentations: Groups TBA	
9	Lec 9	Mar 14	Presentations: Groups TBA	
10	Tut 10	Mar 19	Presentations: Groups TBA	

10	Lec 10	Mar 21	Presentations: Groups TBA	
11	Tut 11	Mar 26	Invited speaker paper presentation	Reflective paper is based on this presentation
11	Lec 11	Mar 28	Art & Biology project presentations	Final critiques on student projects
12	Tut 12	Apr 2	Student group learning	Karch et. al., 2017
12	Lec 12	Apr 4	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. ***Please respect these rules and the values that they protect.***