

BIOC10H: Proteins from birth to death

Dr. Aarthi Ashok
Department of Biological Sciences, UTSC
Course Syllabus
Winter 2017

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, BV 363

Tutorial sessions: MONDAYS, 3-4PM, BV 363

Course staff:

Instructor: Dr. Aarthi Ashok

aashok@utsc.utoronto.ca

Office hours: Mondays, 2-3pm

Office location: SW 521D

TA: Trisha Mahtani

Email: trisha.mahtani@mail.utoronto.ca

Online course resources:

Login and access the blackboard site for BIOC10H for Winter 2017. 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 = 5%**
- 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 (10%) + the presentation in class (5%).
- 7. Reflective paper** on invited speaker presentation in Tutorial 12 = **2%**
- 8. Art & Biology project and presentation** in Week 12 = **4%**
- 9. Final exam = 35%**
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, you will need to provide a UTSC medical certificate to 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.

Course Schedule:

Week	Lec/Tut #	Date	Topic	Details/ Papers
1	Tut 1	Jan 2	Introduction to tutorial expectations	Assignment of groups & reading in "sections" with model paper
1	Lec 1	Jan 4	Course introduction	Syllabus & Schedule
			Reading Scientific Literature	Types of scientific literature; how to dissect a paper
2	Tut 2	Jan 9	Introduction to tutorial expectations	Jigsaw model & assignment of groups
			Introduction to student presentations in weeks 9 & 10	Guidelines on choosing topic/scientist; presentation expectations
			Art & Biology project expectations	Forming groups on BB; expectations
2	Lec 2	Jan 11	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 16	Student group learning	Levine et. al., 2005
3	Lec 3	Jan 18	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 23	Student group learning	Paper - TBA
4	Lec 4	Jan 25	Understanding the components of the ubiquitin-proteasome system	Paper - TBA
			Introduction to Lec 5	The ER membrane
5	Tut 5	Jan 30	Student group learning	Inoue et. al., 2011
5	Lec 5	Feb 1	Modes of entry into the ER	Inoue et. al., 2011
			Introduction to Lec 6	Unfolded protein response
6	Tut 6	Feb 6	Student group learning	Lin et. al., 2007
6	Lec 6	Feb 8	UPR & cell fate decisions	Lin et. al., 2007
7	Tut 7	Feb 13	Pick out group presentation days	Questions about midterm exam or presentations
7	Lec 7	Feb 15	Midterm test	Content of weeks 2-6 tested
			Reading Week	
8	Tut 8	Feb 27	Student Group learning	Paper - TBA
8	Lec 8	Mar 1	Vesicular trafficking	Paper - TBA
9	Tut 9	Mar 6	Presentations: Groups TBA	
9	Lec 9	Mar 8	Presentations: Groups TBA	
10	Tut 10	Mar 13	Presentations: Groups TBA	
10	Lec 10	Mar 15	Presentations: Groups TBA	
11	Tut 11	Mar 20	Student group learning; Art & Biology presentation logistics	Marks et. al., 2012

11	Lec 11	Mar 22	Determinants of lysosomal trafficking	Marks et. al., 2012
			Introduction to Lec 12	
12	Tut 12	Mar 27	Invited speaker paper presentation	Reflective paper is based on this presentation
12	Lec 12	Mar 29	Art & Biology project presentations	
			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 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 (located in S302) 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/resourcesforstudents.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.**