

BIOD29H: Pathobiology of Human Disease

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

Course description:

This course will examine human disease pathogenesis from two distinct perspectives: infectious and inherited. The first part of the course will explore human viral pathogens, their characteristics and the pathogenesis of their associated diseases. Topics will include the pathogenesis of human retroviruses, influenza and hepatitis viruses. The latter part of the course will focus on the pathogenesis of genetically inherited disorders. Selected topics will encompass both single gene and complex multigenic disorders. The course will also include an examination of unconventional diseases such as those associated with bioterrorism agents and prion diseases. The course will follow lecture/seminar/discussion format and will require critical evaluation of primary scientific literature.

Co-requisites: BIOC17H or BIOC10H or BIOC39H

Enrollment limit: 40

Time and Location:

Lectures: MONDAYS, 11AM -NOON, BV 355

Discussion sessions: WEDNESDAYS, 11AM-1PM, BV 355

Student Reading groups*: MONDAYS, 4-5pm, BV 355 (*This is a peer-based learning session in which you will develop skills to dissect primary literature)

Online course resources:

Login and access the BLACKBOARD SITE FOR BIOD29H for Winter 2018

This site will contain:

- The course syllabus – including a course description & schedule.
- Contact information for the instructor & TA
- Important announcement regarding lectures, tutorials or course content – **please check this site regularly for any such announcements.**
- Lecture outlines will be posted prior to each class.
- Links to primary literature assigned will be posted prior to each week of discussions.
- Slides from student presentations as study material for exams.

Evaluation:

1. Pop-quizzes: multiple-choice/short-answer format – at any time in the course = total value of **5%**

2. Class presentations of critically evaluated primary literature = **25%**

- Students will be divided into 8 groups of ~3-5 students
- Mini group presentation – Week 3 = 5%
- Full-length group presentation – Weeks 4-12 = 17%
- Revised full-length group presentation – Weeks 4-12 = 3%

3. In-class participation and weekly prepared questions = Week 2 and Weeks 4-12 (except for the week that you are presenting in)- total of 8 weeks = **8%**

4. Reading group participation = **2%**

5. Mid term test (50 mins) in week 7 of the class likely (dependent on registrar) = **20%**

Could include either or both of the following:

- Multiple-choice questions about material covered in the course
- Short answer/ data analysis questions on papers covered in the course

6. Biology outreach project performed in Week 7 of the course = **10%**

8. Final exam (2 hours) during exam period (Date & time TBA) = **30%**

Could include any or all of the following:

- Answer 2 questions out of 3 choices – essay style
- Multiple-choice questions about material covered in the course
- Short answer/ data analysis questions on papers covered in the course

Course staff:

Instructor: Dr. Aarthi Ashok

aashok@utsc.utoronto.ca

Office hours: Tuesdays, 1-2pm

Office location: SW 521D

TA: Trisha Mahtani

trisha.mahtani@mail.utoronto.ca

Reading group peer moderator: Lloyd Bijuli-Singh

lloyd.bijuli.singh@mail.utoronto.ca

Course Schedule:

Class	Date	Topic	Notes	Reading group?
1A	Jan 8	Course introduction	Syllabus and course goals; group and topic assignments	NO
		Biology of viruses	Introduction to viruses	
1B	Jan 10	Antivirals and vaccines	Vaccines, antiviral drugs & targets	
		Critical reading of scientific literature	Reading and note-taking strategies, common techniques in cell & molecular biology	
2A	Jan 15	Pathogenesis of positive stranded RNA viruses	Picornaviruses & Coronaviruses	YES
2B	Jan 17	Picornaviruses & Coronaviruses	Primary literature (learning to read critically)	
3A	Jan 22	Pathogenesis of negative stranded RNA viruses	Paramyxoviridae, Rhabdoviridae & Filoviridae	NO
3B	Jan 24	Filoviruses	Mini presentation – ALL groups	
4A	Jan 29	Pathogenesis of DNA viruses	HSV-1, HSV-2, Varicella zoster, Epstein-Barr & Cytomegalovirus	YES (Group 1 members do NOT attend)
4B	Jan 31	Herpes Viruses	Group 1 presentation	
5A	Feb 5	Pathogenesis of T-lymphotropic viruses	HTLV-1, 2, 3 & 4.	YES (Group 2 members do NOT attend)
5B	Feb 7	T-lymphotropic viruses	Group 2 presentation	
6A	Feb 12	Pathogenesis of Hepatitis viruses	Hepatitis A, B, C, D & E	YES (Group 3 members do NOT attend)
6B	Feb 14	Hepatitis viruses	Group 3 presentation	
Reading Week				
7A	Feb 26	Midterm test for content from weeks 1-6 inclusive (in-class or outside of class TBD)	Note: will be office hours, if midterm outside of class time needs to be scheduled (enrolment dependent)	NO
7B	Feb 28	Biology outreach projects		
8A	Mar 5	Biological agents of bioterrorism & warfare	Anthrax, Plague, Smallpox & viral hemorrhagic fevers	YES (Group 4 members do NOT attend)
8B	Mar 7	Biological agents of bioterrorism & warfare	Group 4 presentation	
9A	Mar 12	Prion disease pathogenesis	Infectious versus genetic forms	YES (Group 5 members do NOT attend)
9B	Mar 14	Prion disease pathogenesis	Group 5 presentation	
10A	Mar 19	Prion disease pathogenesis part II	Prion-like propagation in other diseases	YES (Group 6 members do NOT attend)
10B	Mar 21	Prion disease pathogenesis part II	Group 6 presentation	
11A	Mar 26	Single gene disorders I	OI, Sickle cell anemia & Huntington's disease	YES (Group 7 members do NOT attend)
11B	Mar 28	Single gene disorders I	Group 7 presentation	
12A	Apr 2	Single gene disorders II	Lysosomal storage disorders	YES (Group 8 members do NOT attend)
12B	Apr 4	Single gene disorders II	Group 8 presentation	

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 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* (<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 or misrepresenting your identity. **In academic work:** falsifying institutional documents or grades or 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.***

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 be re-weighted for some absences; the instructor will make this decision on a case by case basis.