

BIOD29H: Pathobiology of Human Disease

Dr. Aarthi Ashok
Department of Biological Sciences, UTSC
Course Syllabus
Winter 2019

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: BIOC10H or BIOC20H 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 260 (*This is a peer-based learning session in which you will develop skills to dissect primary literature)

Online course resources:

Login and access the Quercus site for BIOD29H for Winter 2019

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 that will be 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. Midterm test in week 7 (likely in-class; dependent on enrolment) = **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 (deadlines will be in March, likely) = **15%**

8. Final exam (2 hours) during exam period (Date & time TBA) = **25%**

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: Durga Acharya

durga.acharya@mail.utoronto.ca

Reading group peer moderators: Former students

Contact info will be available through Dr. Ashok or the TA.

Course Schedule:

Class	Date	Topic	Notes	Reading group?
1A	Jan 7	Course introduction	Syllabus and course goals; group and topic assignments	NO
		Biology of viruses	Introduction to viruses	
1B	Jan 9	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 14	Outreach Project discussion	Presentation by Erin Cannon	YES
		Pathogenesis of positive stranded RNA viruses	Picornaviruses & Coronaviruses	
2B	Jan 16	Picornaviruses & Coronaviruses	Primary literature (learning to read critically)	
	Jan 18, 19 or 25	Outreach project training sessions	Will be discussed in Lec 1B; likely only one date will be used	
3A	Jan 21	Pathogenesis of negative stranded RNA viruses	Paramyxoviridae, Rhabdoviridae & Filoviridae	NO
3B	Jan 23	Filoviruses	Mini presentation – ALL groups	
4A	Jan 28	Pathogenesis of DNA viruses	HSV-1, HSV-2, Varicella zoster, Epstein-Barr & Cytomegalovirus	YES (Group 1 members do NOT attend)
4B	Jan 30	Herpes Viruses	Group 1 presentation	
5A	Feb 4	Pathogenesis of T-lymphotropic viruses	HTLV-1, 2, 3 & 4.	YES (Group 2 members do NOT attend)
5B	Feb 6	T-lymphotropic viruses	Group 2 presentation	
6A	Feb 11	Pathogenesis of Hepatitis viruses	Hepatitis A, B, C, D & E	YES (Group 3 members do NOT attend)
6B	Feb 13	Hepatitis viruses	Group 3 presentation	
		Reading Week		
7A	Feb 25	Additional office hours	Midterm, outreach project discussions.	NO
7B	Feb 27	Midterm test: Weeks 1-6 inclusive	In-class or outside of class TBD (enrollment)	
8A	Mar 4	Biological agents of bioterrorism & warfare	Anthrax, Plague, Smallpox & viral hemorrhagic fevers	YES (Group 4 members do NOT attend)
8B	Mar 6	Biological agents of bioterrorism & warfare	Group 4 presentation	
9A	Mar 11	Prion disease pathogenesis	Infectious versus genetic forms	YES (Group 5 members do NOT attend)
9B	Mar 13	Prion disease pathogenesis	Group 5 presentation	
10A	Mar 18	Prion disease pathogenesis part II	Prion-like propagation in other diseases	YES (Group 6 members do NOT attend)
10B	Mar 20	Prion disease pathogenesis part II	Group 6 presentation	
11A	Mar 25	Single gene disorders I	OI, Sickle cell anemia & Huntington's disease	YES (Group 7 members do NOT attend)
11B	Mar 27	Single gene disorders I	Group 7 presentation	
12A	Apr 1	Single gene disorders II	Lysosomal storage disorders	YES (Group 8 members do NOT attend)
12B	Apr 3	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. You will be required to submit written work to turnitin in this course (e.g. draft and final versions of outreach projects). **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 reading group.
- If you are ill during the term, and this illness influences your ability to attend a assessed lecture or reading group, 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 absences, 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.