

BIOD29H3S: Pathobiology of human disease

Dr. Aarthi Ashok
Department of Biological Sciences, UTSC
Course Syllabus
Winter 2014

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: BGYC17H3 or BIOC10H3S

Enrollment limit: 45

Time and Location:

Lectures: MONDAYS, 11AM -NOON, MW 170

Discussion sessions: WEDNESDAYS, 11AM-1PM, BV 264

Student Reading groups: MONDAYS, 4-5pm, MW 170

Online course resources:

Login and access the BLACKBOARD SITE FOR BIOD29H for Winter 2014

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.
- 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 worth 2% -5% each – at any time in the course = total value of **10%**

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

-students will be divided into 8 groups of ~2-4 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. Weekly Prepared questions = Week 2 and Weeks 4-12 (except for the week that you are presenting in)- total of 8 weeks = **4%**

4. In-class participation = **7%**

5. Mid term test (1 hour) in week 7 of the class = **22%**

Could include any or all of the following:

-answer 1 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

6. Creative project performed in Week 7 of the course = **5%**

7. Final exam (3 hours) during exam period (Date & time TBA) = **27%**

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, 2-3pm

Office location: SW 521D

TA: Lasse Schulze

lasse.schulze@utoronto.ca

Office hours: by appointment

Course Schedule:

Class	Date	Topic	Notes
1A	Jan 6	Course introduction	Syllabus and requirements; group and topic assignments
		Biology of viruses	Intro to viruses & classification
1B	Jan 8	Antivirals and vaccines	Intro to live versus killed vaccines; immune sera; antiviral drugs & targets
2A	Jan 13	Pathogenesis of positive stranded RNA viruses	Picornaviruses & Coronaviruses EX: Poliovirus, Rhinovirus, SARS
2B	Jan 15	Picornaviruses & Coronaviruses	Primary literature (AA)
3A	Jan 20	Pathogenesis of negative stranded RNA viruses: Mononegavirales	Paramyxoviridae, Orthomyxoviridae, Rhabdoviridae, Filoviridae & Bornaviridae EX: influenza, measles, borna, ebola and rabies
3B	Jan 22	Order: Mononegavirale	Primary literature (ALL groups)
4A	Jan 27	Pathogenesis of DNA viruses: Herpes viruses	HSV-1, HSV-2, Varicella zoster, Epstein-Barr & cytomegalovirus
4B	Jan 29	Family: Herpesviridae	Primary literature (group 1)
5A	Feb 3	Pathogenesis of Human retroviruses	HIV and HTLV-1 & 2
5B	Feb 5	Human retroviruses	Primary literature (group 2)
6A	Feb 10	Pathogenesis of Hepatitis viruses	Hepatitis A, B, C, D & E; Picornavirus, Hepadnavirus, Flavivirus & Calcivirus
6B	Feb 12	Hepatitis viruses	Primary literature (group 3)
		Reading Week	
7A	Feb 24	Mid term test (1hr)	
7B	Feb 26	Individual creative projects	
8A	Mar 3	Biological agents of bioterrorism & warfare	Anthrax, Plague, Smallpox & viral hemorrhagic fevers (Ebola & Marburg) Ricin, Agent orange
8B	Mar 5	Biological agents of bioterrorism & warfare	Primary literature (group 4)
9A	Mar 10	Prion disease pathogenesis	Infectious v genetic forms
9B	Mar 12	Prion disease pathogenesis	Primary literature (group 5)
10A	Mar 17	Prion disease pathogenesis part II	
10B	Mar 19	Prion disease pathogenesis part II	Primary literature (group 6)

11A	Mar 24	Single gene disorders: defects in structural proteins	OI, EDS & Marfan's syndrome
11B	Mar 26	Single gene disorders 1	Primary literature (group 7)
12A	Mar 31	Single gene disorders: defects in receptors and enzymes	Familial hypercholesterolemia & lysosomal storage disorders
12B	April 2	Single gene disorders 2	Primary literature (group 8)

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.***

Special Notes:

If you miss a class or exam due to illness, you will need to provide a UTSC medical certificate to Dr. Ashok (ASAP) in order to not be penalized for any course evaluation components that may have occurred in your absence.