

# BIOD29H: Pathobiology of Human Disease

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

## **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

**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 361 (\*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 2017

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 **6%**

**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. 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 = **20%**

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. Biology outreach project** performed in Week 7 of the course = **8%**

**7. Media story** turned in/discussed in class in Week 10 = **2%**

**8. Final exam** (2 hours) during exam period (Date & time TBA) = **28%**

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

## Course Schedule:

Class	Date	Topic	Notes
1A	Jan 2	Course introduction	Syllabus and course goals; group and topic assignments
		Biology of viruses	Intro to viruses & classification
1B	Jan 4	Antivirals and vaccines	Intro to live versus killed vaccines; immune sera; antiviral drugs & targets
2A	Jan 9	Pathogenesis of positive stranded RNA viruses	Picornaviruses & Coronaviruses
2B	Jan 11	Picornaviruses & Coronaviruses	Primary literature (AA)
3A	Jan 16	Pathogenesis of negative stranded RNA viruses	Paramyxoviridae, Orthomyxoviridae, Rhabdoviridae, Filoviridae & Bornaviridae
3B	Jan 18	Filoviruses	<b>Mini presentation – ALL groups</b>
4A	Jan 23	Pathogenesis of DNA viruses	HSV-1, HSV-2, Varicella zoster, Epstein-Barr & cytomegalovirus
4B	Jan 25	Herpes Viruses	<b>Group 1 presentation</b>
5A	Jan 30	Pathogenesis of Human retroviruses	HIV and HTLV-1 & 2
5B	Feb 2	Human retroviruses	<b>Group 2 presentation</b>
6A	Feb 6	Pathogenesis of Hepatitis viruses	Hepatitis A, B, C, D & E
6B	Feb 8	Hepatitis viruses	<b>Group 3 presentation</b>
7A	Feb 13	<del>Mid term test (1hr)</del>	
7B	Feb 15	<b>Biology outreach projects</b>	
		<b>Reading Week</b>	
8A	Feb 27	Biological agents of bioterrorism & warfare	Anthrax, Plague, Smallpox & viral hemorrhagic fevers
8B	Mar 1	Biological agents of bioterrorism & warfare	<b>Group 4 presentation</b>
9A	Mar 6	Prion disease pathogenesis	Infectious v genetic forms
9B	Mar 8	Prion disease pathogenesis	<b>Group 5 presentation</b>
10A	Mar 13	Prion disease pathogenesis part II	
10B	Mar 15	Prion disease pathogenesis part II	<b>Group 6 presentation</b>
11A	Mar 20	Single gene disorders	OI, EDS & Marfan's syndrome
11B	Mar 22	Defects in structural proteins	<b>Group 7 presentation</b>
12A	Mar 27	Single gene disorders	Familial hypercholesterolemia & lysosomal storage disorders
12B	Mar 29	Defects in receptors and enzymes	<b>Group 8 presentation</b>

Note that midterm exam will now be held on Mon, Feb 27th from 5-6pm in HW214. -AA (Jan 19, 2017)

### **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](mailto: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](http://www.utoronto.ca/academicintegrity/resourcesfor_students.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 or exam due to illness, you will need to provide a UTSC medical certificate within 48 hours of a missed class or exam to Dr. Ashok in order to not be penalized for any course evaluation components that may have occurred in your absence.