

# BIOD29H3S: Pathobiology of Human Disease

**Dr. Aarthi Ashok**  
**Department of Biological Sciences, UTSC**  
**Course Syllabus**  
**Winter 2015**

## **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:** 40

## **Time and Location:**

**Lectures:** MONDAYS, 11AM -NOON, BV 361

**Discussion sessions:** WEDNESDAYS, 11AM-1PM, BV 361

**Student Reading groups:** MONDAYS, 4-5pm, AA 209

## **Online course resources:**

Login and access the BLACKBOARD SITE FOR BIOD29H for Winter 2015

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 **10%**

**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 = **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:** Ahmed Elbassiouny

ahmed.elbassiouny@mail.utoronto.ca

## Course Schedule:

Class	Date	Topic	Notes
1A	Jan 5	Course introduction	Syllabus and course goals; group and topic assignments
		Biology of viruses	Intro to viruses & classification
1B	Jan 7	Antivirals and vaccines	Intro to live versus killed vaccines; immune sera; antiviral drugs & targets
2A	Jan 12	Pathogenesis of positive stranded RNA viruses	Picornaviruses & Coronaviruses
2B	Jan 14	Picornaviruses & Coronaviruses	Primary literature (AA)
3A	Jan 19	Pathogenesis of negative stranded RNA viruses	Paramyxoviridae, Orthomyxoviridae, Rhabdoviridae, Filoviridae & Bornaviridae
3B	Jan 21	Filoviruses	<b>Mini presentation – ALL groups</b>
4A	Jan 26	Pathogenesis of DNA viruses	HSV-1, HSV-2, Varicella zoster, Epstein-Barr & cytomegalovirus
4B	Jan 28	Herpes Viruses	<b>Group 1 presentation</b>
5A	Feb 2	Pathogenesis of Human retroviruses	HIV and HTLV-1 & 2
5B	Feb 4	Human retroviruses	<b>Group 2 presentation</b>
6A	Feb 9	Pathogenesis of Hepatitis viruses	Hepatitis A, B, C, D & E
6B	Feb 11	Hepatitis viruses	<b>Group 3 presentation</b>
		<b>Reading Week</b>	
7A	Feb 23	<b>Mid term test (1hr)</b>	
7B	Feb 25	<b>Individual creative projects</b>	
8A	Mar 2	Biological agents of bioterrorism & warfare	Anthrax, Plague, Smallpox & viral hemorrhagic fevers
8B	Mar 4	Biological agents of bioterrorism & warfare	<b>Group 4 presentation</b>
9A	Mar 9	Prion disease pathogenesis	Infectious v genetic forms
9B	Mar 11	Prion disease pathogenesis	<b>Group 5 presentation</b>
10A	Mar 16	Prion disease pathogenesis part II	
10B	Mar 18	Prion disease pathogenesis part II	<b>Group 6 presentation</b>
11A	Mar 23	Single gene disorders	OI, EDS & Marfan's syndrome
11B	Mar 25	Defects in structural proteins	<b>Group 7 presentation</b>
12A	Mar 30	Single gene disorders	Familial hypercholesterolemia & lysosomal storage disorders
12B	April 1	Defects in receptors and enzymes	<b>Group 8 presentation</b>

### **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/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 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.