

## **Daugherty-BIMM 194.**

**Title:** Human Pathogenic Viruses

**Instructor:** Matt Daugherty

**Location:** York 3010

**Date/Time:** Wednesdays from 12:30pm-1:50pm

### **Course Summary:**

Most viral pandemics, including AIDS and pandemic flu, are the result of viruses crossing from their natural host species into the human population. In this course, we will focus on the role that viral evolution and evasion of the immune system plays in transmission and pathogenesis of several devastating human viruses including HIV, influenza, Ebola and other emerging viruses.

**Prerequisites:** BIMM100 (Molecular Biology), and its prerequisites.

**Lectures:** I will present the first two lectures reviewing general principles of virology, evolution and immune responses. The rest of the classes will consist in presentation and discussion of one paper related to viral immunity. Selected papers will assigned 1-2 weeks in advance and need to be read before class. A group of ~4 students will be assigned for each paper. The presenters will identify the major question/s addressed by the paper, describe each figure and the correspondent conclusion and come up with a simple take-home message for the paper.

### **I suggest the following template for the presentation**

- 1) General question
- 2) Specific question 1, Figure 1, Conclusion from Figure 1
- 3) Specific question 2, Figure 2, Conclusion from Figure 2
- 4) Same as 2 and 3 with subsequent figures
- 5) Review of all conclusions from each figures
- 6) TAKE-HOME MESSAGE

**Quizzes:** There will be nine quizzes, one every week (except the first week) at the end of each class. They will consist of T/F questions regarding the material. Questions will be related to conclusions or concepts emphasized during the presentation. Each quiz will count for 5% of your grade.

**Participation:** Questions, comments, suggestions are encouraged at any time during the lecture.

**Grading:** Grading will reflect presentation of the assigned paper (35%), quizzes (45%), participation (20%). The grading will be normalized to the highest score. 60-70% of that score will be a D, 70-80% will be a C, 80-90% will be a B and 90-100% of that an A.

**'Viruses in the News':** One additional point toward your grade can be obtained each week (except the first week) for bringing in an article from a credible news source about emerging viruses in addition to a brief (<50 words) summary of the article and why you found it interesting/newsworthy.

**Email communication:** [mddaugherty@ucsd.edu](mailto:mddaugherty@ucsd.edu) is the appropriate email for all correspondence. Please remember to include your first and last name in the body of the email and WRITE BIMM194 IN E-MAIL SUBJECT (your e-mail will not be read if you do not write that). Questions that can be asked before or after lecture should not be asked and will not be answered by e-mail.

## **Spring 2017 Class Schedule:**

Class 1 - April 5: Introduction to viruses, evolution and the immune system

Class 2 - April 12: Continued introduction to viruses, evolution and the immune system

Class 3 - April 19: *Retroviridae* (e.g. HIV-1, HIV-2)

Class 4 - April 26: *Flaviviridae* (e.g. Dengue virus, West Nile virus, Zika virus)

Class 5 - May 3: *Picornaviridae* (e.g. Poliovirus, Rhinovirus, Hepatitis A virus)

Class 6 - May 10: Other positive-strand RNA viruses (e.g. SARS, MERS, Chikungunya virus)

Class 7 - May 17: *Poxviridae* (e.g. Smallpox)

Class 8 - May 24: *Herpesviridae* (e.g. Herpes Simplex virus, Epstein-Barr virus)

Class 9 - May 31: *Orthomyxoviridae* (e.g. Influenza virus)

Class 10 - June 7: Other negative-strand RNA viruses (e.g. Ebolavirus, Nipah virus, Lassa virus)

No final