

Preliminary Schedule
Comparative Virology 11:126:407 Fall, 2015
Room 138A Foran Hall, Cook Campus

This schedule will change in the course of the semester, and will be updated.

BIH = Dr. Hillman lecture; NET = Dr. Tumer lecture

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| 1. Tue Sept. 1 | BIH – Course Introduction and Introduction to Virology (Chapter 1 and 2) |
| 2. Fri Sept. 4 | BIH – History of Virology (Chapter 1 and 2) |
| 3. Fri Sept. 11 | BIH – Virus Composition, Structure, and Taxonomy (Chapter 3) |
| 4. Tue Sept. 15 | BIH – Virology Methods and Techniques (Chapters 4.1; 5) |
| 5. Fri Sept. 18 | BIH– Virus transmission (Chapter 3) |
| 6. Tue Sept. 22 | BIH– Virus Evolution |
| 7. Fri Sept. 25 | BIH– Virus evolution and single-stranded DNA viruses |
| 8. Tue Sept 29 | QUIZ 1 |
| 9. Fri Oct. 2 | NET–Viral translation (Chapter 2) |
| 10. Tue Oct. 6 | NET- Viral genomes/ replication (Chapters 3 and 4) |
| 11. Fri Oct. 9 | NET- Viral diagnostics (Chapter 5) |
| 12. Tue Oct. 13 | NET- Host resistance to viral infection (Chapter 7) |
| 13. Fri Oct. 16 | NET- Picornaviruses (Chapter 11) |
| 14. Tue Oct. 20 | BIH – Negative-stranded RNA Viruses, Non-segmented (Chapter 13) |
| 15. Fri Oct. 23 | BIH – Negative-stranded RNA Viruses, Segmented (Chapter 12) |
| 16. Tue Oct. 27 | BIH – Double-stranded RNA Viruses |
| 17. Fri Oct. 30 | QUIZ 2 |
| 18. Tue Nov. 3 | BIH – Double-stranded DNA viruses – Adeno, Polyoma, Papilloma |
| 19. Fri Nov. 6 | BIH - Double-stranded DNA viruses –Poxviruses (Chapter 14) |
| 20. Tue Nov. 10 | BIH - Double-stranded DNA viruses –Herpesviruses (Chapter 15) |
| 21. Fri Nov. 13 | NET- Bacteriophages/Toxins (Chapter 21) |
| 22. Tue Nov. 17 | NET–Retroviruses (Chapter 16) |
| 23. Fri Nov. 20 | NET-Retroviruses and PDB analysis of HIV (Dr. Suchi Duda) (Chapter 16) |
| 24. Tue Nov. 24 | QUIZ 3 |
| 25. Wed Nov. 25 | NET- Plant viruses (Chapter 20) |
| 26. Tue Dec. 1 | BIH – Prions, satellites, defective viruses (Chapter 19) |
| 27. Fri Dec 4 | BIH – Marine viruses (Dr. Kay Bidle) |
| 28. Tue Dec. 8 | NET- Hepatitis C virus (Dr. Rong Di; Chapter 17) |

Final Exam: Tuesday December 22, 8am - 11am

Note: This schedule **will be modified** as the semester progresses. For example, we **will add and change student presentation dates** and **we may add invited** speakers. You will be given sufficient warning of any major changes. A course web site will be up by the end of the first week.

Learning Goals

1. Understand the differences between viruses and other microbes.
2. Understand the methods used to study viruses at physico-chemical, molecular, and population levels and how viruses are used in biotechnology and gene therapy.
3. To learn about similarities and differences among viruses that infect different kinds of prokaryotic and eukaryotic hosts.
4. To learn about similarities and differences in genome composition, organization, replication, and gene expression strategies of viruses.
5. To learn details of some major virus diseases.
6. To learn about host mechanisms used for defense against virus infection.
7. To learn about current topics in virology through classroom presentations and discussion.

Assessment Measures

1. Exams covering lecture and reading material (long answer, short answer, multiple choice, true-false).
2. Group presentation on topic of current interest.
3. Reference-based paper summarizing and expanding on group presentation.
4. Participation in classroom discussions.

Grades and Course Requirements

A total of 400 points are possible:

Exams 1-3 and Final Exam: 100 points each - count best 3 out of the 4; 300 total points.

Project and write-up – 100 points. Details of class projects are below and will be explained further the first day of class.

Note: you may choose to skip an exam for any reason such as illness, conflict with other exams, family issues, etc. Because we allow you to drop an exam, we do not give make-up exams for any reason other than catastrophic circumstances such as prolonged illness, for which we will require documentation. Any student who has a high enough point total on the first three exams plus the project score to be guaranteed an A in the class will be informed of that before the final exam and won't have to take the final. The Final Exam will be comprehensive, but will emphasize the latter portion of the course.

Class Presentations

Each student in the course will do **one** of two types of projects described below:

The **first** type of project will be to summarize a recent news story about a virus-related topic for the class. The presentation itself should be no more than 5 minutes, allowing a few minutes for questions or follow-up discussion, and will be done at the beginning of the class period. The presentation can be done live to the class or as a YouTube-type video. If it's done as a video, you must make the video, not just get it from the Internet. You must provide the source for the story (that is, where you got it). Each student will also provide a 4-5 page, double-spaced paper summarizing the presentation, with additional background material, and will provide copies of material used for the presentation (e.g., PowerPoint slides or video). At least 5 references will be required, in the approved format as described below. A minimum of two of the references must be from refereed journal articles. If you don't know what that means, please ask. All

of the relevant information in your paper should be referenced. In other words, if you make a statement that is not based on information that is common knowledge or that was covered in class, the reference for the statement should be cited in your paper, and we should be able to find the information (see note* about plagiarism below). **Your presentation topic and outline must be cleared with Dr. Hillman no later than the class period before the presentation. If you have PowerPoint or video files, those files containing the presentation must be provided to Dr. Hillman by 4:30 PM the day before the presentation.** Presentations will be graded on organization, information, and delivery, and on the quality of the accompanying paper.

The **second** type of presentation will be on one of the topics in “Encounters in Virology.” This presentation will be done by 2-3 people for 15 min at the end of class. You will choose one of the topics discussed in Chapters 1-14, present this topic to the class and discuss the questions at the end of the chapter. You can present the material as a power point presentation or as a video. Each student will also provide a 4-5 page, double-spaced paper summarizing the presentation and answering the questions at the end of the chapter, and will provide copies of material used for the presentation (e.g., PowerPoint slides or video). At least 5 references will be required, in the approved format as described below. A minimum of two of the references must be from refereed journal articles. **Your presentation topic must be cleared with Dr. Tumer no later than the class period before the presentation. If you have PowerPoint or video files, those files containing the presentation must be provided to Dr. Tumer by 4:30 PM the day before the presentation.** Presentations will be graded on organization, information, and delivery, and on the quality of the accompanying paper.

Format for references in papers:

Hillman, B. I., Foglia, R., and Yuan, W. 2000. Satellite and defective RNAs of *Cryphonectria hypovirus 3*, a virus species in the Family *Hypoviridae* with a single open reading frame. *Virology* 276, 181-189.

Hudak, K., Wang, P. and Tumer, N. E. 2000. Pokeweed antiviral protein inhibits translation of capped mRNAs independently of ribosome depurination by acting directly on the RNA template. *RNA* 6, 1-12.

Citations to papers in text should be of the form: (Hillman *et al.*, 2000; Hudak *et al.*, 2000), for example.

***A note about plagiarism:** Plagiarism is representing the words or ideas of someone else as if they were your own. Included in plagiarism, incidentally, is self-plagiarism: an example is representing something you wrote previously for another publication or assignment (for example, for another course) as if it were done as an original work for an unrelated publication or assignment (for example, this course). If you want to use part of a paper you wrote previously for another assignment, check with us first. You are all aware that one of the consequences of Google taking over the communications and publishing world and resources such as Turnitin being easily accessible is that it has become incredibly easy to detect even single sentences that were written by someone else. The possible dividend of incrementally supplementing your grade by a few points through plagiarism or other forms of cheating is really not worth the risk of failing this course. If you have any question about what plagiarism is, please check with us.

Text: The text we use is Understanding Viruses by Teri Shors (Jones and Bartlett). We recommend the Second Edition, but the First Edition will serve as well.

Some useful web sites:

General

<http://www.virology.net>

<http://www.virology.wisc.edu/>

<http://www.twiv.tv/>

Virus Taxonomy and Nomenclature

Chris Upton, large DNA viruses <http://athena.bioc.uvic.ca/>

International Committee for the Taxonomy of Viruses (ICTV) <http://www.ictvonline.org/>

Virus Structure

VIPER <http://viperd.b.scripps.edu/>

Virus Sequence Information

National Center for Biotechnology Information (NCBI) <http://www.ncbi.nlm.nih.gov/>

Viruses that you should be familiar with by the end of the course:

Poliovirus (Picornaviridae)
West Nile virus (Flaviviridae)
Hepatitis C virus (Flaviviridae)
Tobacco mosaic virus (Tobamovirus)
Brome mosaic virus (Bromoviridae)
Tobacco etch virus (Potyviridae)
Rabies virus (Rhabdoviridae)
Measles virus (Paramyxoviridae)
Ebola virus (Filoviridae)
Hantavirus (Bunyaviridae)
Influenza virus (Orthomyxoviridae)
Bluetongue virus (Reoviridae)
Human immunodeficiency virus 1 (Retroviridae)
Cauliflower mosaic virus (Pararetrovirus – Caulimoviridae)
Hepatitis B virus (Hepadnaviridae)
Tomato yellow leaf curl virus (Geminiviridae)
Human adenovirus 1 (Adenoviridae)
Simian virus 40 (Polyomaviridae)
Human herpesvirus 3 (= Varicella-zoster virus, chicken pox; Herpesviridae)
Smallpox virus (Poxviridae)
Baculovirus (Baculoviridae)
Polydnavirus (Polydnaviridae)
Potato spindle tuber viroid (Pospiviroid)
Bovine spongiform encephalopathy prion

Some questions you should be able to answer by the end of the course:

What are the major types of viruses described in this course? What are the main features of their replication, biology, and pathology?

What are some of the major weapons that viruses use to compromise and facilitate infection in their hosts?

What are some of the different mechanisms that various host organisms use to protect themselves against virus infection?

What are the major means by which viruses are transmitted from an infected host to a healthy host?

How do viruses move within different host organisms?

What are some of the major properties of virus structure and composition?

What are some of the major features of virus evolution?

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

ABSENCE POLICY

Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

FINAL EXAM/PAPER DATE AND TIME

Online Final exam Schedule: <http://finalexams.rutgers.edu/>

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

STUDENT WELLNESS SERVICES

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy,

group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.