Virology – BIOL 377-01

Spring 2023, MWF 11:30-12:20, ISC 137

Instructor

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OFFICE HOURS:
Tuesday 10:30 – 12:00
Wednesday 2:30 - 4:00
and by appointment.

Course Description

This course will provide an introduction to the field of virology with focus on viral structure, replication and genetics. Major classes of viruses that cause human disease will be discussed. (3 credits)
Prerequisites: BIOL 300

Learning Outcomes

Upon completion of this course students will be able to:

1. Understand and explain fundamental viral principles including viral nomenclature, structure, assembly, viral replication, and entry into host cells.
2. Describe the interactions between viruses and their host and how the immune system rallies against these pathogens.
3. Demonstrate knowledge of the most prominent viruses such as Influenza, Hepatitis, Herpesviruses, and HIV.
4. Effectively read, interpret, and, critically evaluate current peer reviewed virology primary literature.
5. Participate in weekly class discussions on primary literature.
6. Collaboratively research a topic/virus (not covered in lecture), create, and deliver a clear focused oral presentation.

Textbook

Understanding Viruses, Third Edition — Author: Teri Shors

Publisher: Jones & Bartlett Learning (2017) — ISBN: 9781284025927

Grading

3 unit exams	42 %
Final exam	18 %
Group paper presentation	11 %
Group project	11 %
Homework	8 %
Class participation	8 %
Reflective Assignment	2 %
	100 % total

The following scale will be used to calculate final grades.

A (93-100%)	A- (90-92%)	
B+ (87-89%)	B (83-86%)	B- (80-82%)
C+ (77-79%)	C (73-76%)	C- (70-72%)
D (60-69%)		
E (<60%)		

Exams: There will be three unit exams and a final exam.

> ***Make up exams will only be administered in special circumstances (e.g. qualified medical excuses). Exams cannot be missed and will not be able to be made up for any other reason including weddings, vacations, or travel.**
>
> ***Please note the exam dates for this course. If you have a legitimate scheduling conflict, you must notify me within the first 2 weeks of class. Otherwise, you will have to take exams as scheduled in the syllabus. If you are ill or have another unexpected issue come up, you must have approval for a makeup exam before missing it, otherwise you cannot make up the exam.**

Group paper presentations: Fridays will be designated for primary literature discussions. Groups of students (2 students per group) will select a primary virology paper and present it to the class. The discussion group must be prepared to answer questions and is responsible for keeping the discussion going, however keep in mind EVERYONE in class should be able to discuss every aspect of the paper. The group that's presenting must select a primary paper no later than Wednesday 10AM and email it to me along with **discussion questions**. The group presentations will be graded by your professor, your peers as well as your group: 30 points will come from your professor, 30 points from your peers, and 10 points from self and group evaluation for a total of 70 points. I'm including the marking guide that will be used to assess the presentations as well as the rubric I will use for "class participation".

Marking Guide for Presentations in Virology

Presenters:

Title:

Date:

Rate each of the following areas on a scale from 1-5

1 = poor 2 = fair 3 = good 4 = very good 5 = excellent

Category	Rating	Comments
CONTENT Topic introduced well, identified rationale/hypothesis, advanced understanding of the experimental approach and significance, conclusions, content appropriate and accurate, in logical order		
ORGANIZATION Presentation easy to follow, divided into appropriate sections, good transitions between slides, coherent, flowed logically		
DELIVERY Good eye contact with audience, spoke clearly, uses proper terminology, all members prepared well, did not just read from notes		
CREATIVITY/VISUAL AIDS Kept audience engaged, used visual aids, well placed images, very little text on slides, all figures labeled properly, original presentation		
CRITICAL EVALUATION OF DATA Critically evaluated results and conclusions, Group analysis of paper not just what authors discuss, understanding implications of data		
GROUP DISCUSSION AND QUESTIONS Understood audience questions, thoroughly responded to questions, led discussion well, interacted with audience		

Rubric for Class Participation and Homework

Category	Excellent (5)	Good (3)	Poor (1)
Read paper	Each week student has read paper thoroughly with understanding of the main idea. They have notes/questions written next to each figure on the hard copy of the paper.	Student has read paper thoroughly most of the time but they are not always clear on the main ideas. They have notes/questions next to most figures but not all.	Student seldom reads paper and has no clear understanding of the main ideas. It's clear that paper has not been read or written in (or paper is not even brought in).
Complete question sheet	Questions sheets are always completed in full and submitted in a timely manner.	Questions sheet are almost always completed and submitted in a timely manner, but there may be some questions that are left unanswered.	Questions sheets are rarely completed and are almost never submitted on time.
Most important figure	Each week student selected "the most important figure" and explain the rationale behind their choice in the context of the paper.	Most weeks student selected "the most important figure" however the rationale was either absent or unclear.	Student rarely selected "the most important figure" and there was never any rationale behind their choice.
Discussion	Student is always an active participant in discussion. They ask appropriate questions and analyze data critically. Their comments generate lively discussion.	Student seems to follow discussion closely but does not always contribute to the discussion itself. When they do they ask critical questions but may have some misinterpretations of data.	Student does not contribute to the in class discussion and it is not clear if they understand the paper.

Group projects: Groups of 2 students will investigate a topic in virology (one that is **NOT** covered in class already) and will present their findings to the class in a clear and focused oral presentation. Each group will have 20 minutes for their presentation and 5 minutes for answering questions. Groups MUST use at least 4 primary literature sources (4 research papers) and at least 1 secondary literature source (1 review paper) for their projects. Group also must make a discussion/summary question sheet so the class can follow along. Topics can include but are not limited to Dengue viruses, Paramyxoviridae (Mumps and Measels), Poliovirus, Zika, viral vaccines, bioterrorism, phages etc. Once you know which topic you want, please email me right away so that I can confirm if this topic is OK and not already claimed by another group (two different groups cannot work on the same topic/virus). **Topics must be selected by April 1st**. The group projects will be graded by your professor, your peers as well as your group: 30 points will come from your professor, 30 points from your peers, and 10 points from self and group evaluation for a total of 70 points.

Class participation: Class attendance is critical during the Friday presentation!

Reflective Assignment: This assignment will be given at the end of the semester along with a grading scale that will be associated with the assignment. It will give you a chance to reflect on the course during the semester.

Accessibility

SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with physical, emotional, or cognitive disabilities to ensure equal access to academic programs, activities, and services at Geneseo. Students with letters of accommodation should submit a letter to each faculty member and discuss their needs at the beginning of each semester. Please contact the Office of Accessibility Services for questions related to access and accommodations.
Office of Accessibility Services
Erwin Hall 22
(585) 245-5112
access@geneseo.edu
www.geneseo.edu/accessibility-office

Technology Support

CIT provides a range of technology support resources. When you are in Canvas, the Help menu on the left side of the screen will also direct you to a number of CIT supports, including self help resources and options to request technology assistance. For assistance with your computer or mobile device, visit the CIT HelpDesk in Fraser. Geneseo students, faculty and staff have free access to the entire LinkedIn Learning training library (over 7,500 courses, including tutorials for software, digital tools, web development, programming, and design) through Geneseo's site license. For more information, visit this self help document. (https://wiki.geneseo.edu/display/cit/LinkedIn+Learning+Training+Library)

Well-Being

Prioritizing well-being can support the achievement of academic goals and alleviate stress. Eating nutritious foods, getting enough sleep, exercising, avoiding drugs and alcohol, maintaining healthy relationships, and building in time to relax all help promote a healthy lifestyle and general well-being.
The changes brought on by COVID-19 have impacted us all in a number of ways, and will continue to do so at various times and to varying degrees during the upcoming semester. Your health and wellbeing are foundational to your ability to learn, and if you find that you are feeling unwell (physically or mentally) and it is impacting your ability to complete your coursework, please reach out. In a similar way, I will occasionally ask for some patience and flexibility on your part. The pandemic is affecting faculty as well as students and creating demands that would not be present in an ordinary semester. If I am slow responding to an email, if I take some time to grade an assignment, if I am a bit late posting a video lecture, please be patient (and feel free to send me a 'nudge'; I will not be offended). You will never suffer any disadvantage in the course because of delays on my part. Remember that we are all in this together.

Concerns about academic performance, health situations, family health and wellness (including the loss of a loved one), interpersonal relationships and commitments, and other factors can contribute to stress. Students are strongly encouraged to communicate their needs to faculty and staff and seek support if they are experiencing unmanageable stress or are having difficulties with daily functioning. The Dean of Students (585-245-5706) can assist and provide direction to appropriate campus resources. For more information, see www.geneseo.edu/dean_students.

Mental Health

As a student, you may experience a range of challenges that can impact your mental health and thus impact your learning; common examples include increased anxiety, shifts in mood, strained relationships, difficulties related to substance use, trouble concentrating, and lack of motivation, among many others. These experiences may reduce your ability to participate fully in daily activities and affect your academic performance.
SUNY Geneseo offers free, confidential counseling for students through Student Health and Counseling, and seeking support for your mental health can be key to your success at college. You can learn more about the various mental health services available on campus www.geneseo.edu/health. To request a counseling appointment, please complete the online form through myhealth.geneseo.edu.

Attendance and Public Health

In the context of the COVID-19 pandemic, it is vital that we all do what we can to protect the health and safety of each other. If you are experiencing symptoms associated with COVID on a day that class meets in-person, do not attend. Remember that it is better to stay home if you are not feeling well than to attend class and risk spreading illness to others. Throughout the semester, please be proactive in communicating about absences and contact the Dean of Students if you expect to be out for an extended period of time.

Academic Integrity and Plagiarism

Milne Library offers frequent workshops to help students understand how to paraphrase, quote, and cite outside sources properly. These sessions are meant to educate about the importance of using original ideas and language, and how to incorporate paraphrases and quotes into writing. The complete list of library workshops can be found at www.geneseo.edu/library/library-workshops.
Academic dishonesty includes cheating, knowingly providing false information, plagiarizing, and any other form of academic misrepresentation. College policies and procedures regarding academic dishonesty are available at www.geneseo.edu/handbook/academic-dishonesty-policy.

Tentative Schedule (subject to change):

Date	Chapters
January 25	Course Organization
January 27	**Paper/Online Activity**
January 30	1: Introduction to Viruses
February 1	7: Laboratory Diagnosis of Viral Diseases and Working with Viruses in the Research Laboratory
February 3	**Workshop: How to properly read and present a scientific primary paper**
February 6	7: Laboratory Diagnosis of Viral Diseases and Working with Viruses in the Research Laboratory
February 8	2: Virus Architecture and Nomenclature
February 10	**Group paper presentation 1**
February 13	2: Virus Architecture and Nomenclature
February 15	4: Mechanisms of Viral Entry and Spread of Infection in the Body
February 17	**Group paper presentation 2**
February 20	4: Mechanisms of Viral Entry and Spread of Infection in the Body
February 22	3: Eucaryotic Molecular Biology, Cellular Hurdles, and How Viruses Hijack Host Cells
February 24	**Group paper presentation 3**
February 27	**Exam 1: Chapters 1, 2, 4, 7, and paper presentations 1, 2 & 3**
March 1	3: Eucaryotic Molecular Biology, Cellular Hurdles, and How Viruses Hijack Host Cells
March 3	**Group paper presentation 4**
March 6	9: Influenza Viruses
March 8	9: Influenza Viruses
March 10	**Group paper presentation 5**
March 13-17	**SPRING BREAK**
March 20	9: Influenza Viruses
March 22	10: Hepatitis Viruses
March 24	**Group paper presentation 6**
March 27	**Exam 2: Chapters 3, 9, and paper presentations 4, 5 & 6**
March 29	10: Hepatitis Viruses
March 31	**Group paper presentation 7**
April 3	11: Herpesviruses
April 5	11: Herpesviruses
April 7	**Group paper presentation 8**
April 10	12: Human Immunodeficiency Virus (HIV)
April 12	12: Human Immunodeficiency Virus (HIV)
April 14	**Group project presentations (Presentation 1 and 2)**
April 17	14: Poxviruses
April 19	**Exam 3: Chapters 10, 11, 12, paper presentations 7 & 8, projects 1 & 2**
April 21	**Group project presentations (Presentation 3 and 4)**
April 24	14: Poxviruses
April 26	**GREAT DAY – NO CLASSES**

April 28	**Group project presentations (Presentation 5 and 6)**
May 1	16: Viruses and Cancer
May 3	16: Viruses and Cancer
May 5	**Group project presentations (Presentation 7 and 8)**
May 8	16: Viruses and Cancer
May 10	Sars-COV-2
MAY 12 FINAL 12-2:30	**Exam 4: Chapters 14 & 16 and group projects 3-8 Also expect a cumulative portion**