

Virology: Biol. 841
Course Syllabus – Spring 2019

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Office hours: For off-campus students, please arrange office hour appointments by email

Course Description

An in-depth discussion of the principles of modern virology. Major topics of discussion will include: virus replication strategies, virus structure, virus infection and disease, and host resistance to disease.

Course Objectives

1. Understand how the virus is able to infect a host, including the steps involved in the infectious cycle including attachment, entry, replication, and exit from the cell.
2. Be able to describe the structure of a virus and the differences that exist between viruses.
3. Know different barriers to infection and the mechanisms viruses employ to get through these barriers.
4. Have a general understanding of how viruses interact with the immune system, mechanisms of pathogenesis and the basis of vaccines.

Textbook

Principles of Virology, 4th edition.

Vol I: Molecular Biology

Vol II: Pathogenesis and Control

Flint J, Racaniello V, Rall G, Skalka AM,

ASM Press, 2015

Computer and Software:

Access to a computer with internet access, Microsoft PowerPoint. Software can be purchased through UNK bookstore at a discount. We will have video presentations that require the use of a webcam. These can be found through Walmart or Amazon starting around \$10.

Communication

The best way to reach me is through email. I will respond to email fairly quickly and if you need to talk to me please email me and we can set up a time to talk further. You should frequently check your UNK email and Canvas for course assignments or announcements. Slides will be posted on Canvas but you will still be required to watch lectures as additional information provided during lectures will be pertinent.

Grading

Discussion (10pt/wk)	110
2 Exams (60pts each)	120
Case Studies (20pts each)	60

Short Presentation (20pts)	20
Viral Presentations (40pts)	40
Total	350

Grades will be assigned using the Department of Biology standard grading scale: follows: A (93-100%), A- (90-92%), B+ (88-89%), B (83-87%), B- (80-82%), C+ (78-79%), C (73-77%), C- (70-72%), D+ (68-69%), D (63-67%), D- (60-62%), and F (below 60%).

Discussion

I will post papers on Canvas on Monday and you will have until Friday for your first post and until the following Monday for your second post. To receive full credit, students must have **two significant contributions** weekly for each paper we discuss and **one comment** on each lecture discussion topic. Your responses must contribute something new to the discussion and not simply agree or disagree to the previous response. References will be required to support your statement - at least one post each week must have a reference. Please be considerate of your classmates' responses, abusive comments or attacking other student's comments will not receive credit as comments should be constructive even if you strongly disagree with another student. Discussions will be posted and due as follows:

- Discussion 1: Jan 8 – Jan 14**
- Discussion 2: Jan 15 – Jan 21**
- Discussion 3: Jan 22 – Jan 28**
- Discussion 4: Feb 5 – Feb 11**
- Discussion 5: Feb 12 – Feb 18**
- Discussion 6: Feb 19 – Feb 25**
- Discussion 7: Feb 26 – Mar 4**
- Discussion 8: Mar 26 – Apr 1**
- Discussion 9: Apr 2 – Apr 8**
- Discussion 10: Apr 9 – Apr 15**
- Discussion 11: Apr 22 – Apr 29**

Exams

Exams will consist of 2 parts. A take home portion consisting of short answer or essay questions and worth 30 pts each. Students will be given one week to complete the exam, however there will still be lectures and other assignments at this time so please do not procrastinate. There will also be an online timed portion of the exam also worth 30 points. This will mainly cover material from lectures. Exam dates are as follows:

- Exam 1: Mar 11 – Mar 18**
- Exam 2: April 25 – May 1**

Case Studies

For the case study assignments, students will work in groups, and each group is assigned the same case study. Everyone in the group needs to participate and students that do not contribute to their group will not receive credit for that assignment. The same guidelines for discussion also apply to participation with the case studies.

Case Study 1: Jan 29 – Feb 4
Case Study 2: Mar 5 – Mar 11
Case Study 3: Apr 16 – Apr 22

Disease Presentation

We will not have the time to cover individual viruses in detail in this class, to cover individual viruses of interest, students will be assigned a virus the week of Jan 7th. Students will create a PowerPoint presentation. PowerPoint presentations will be due Feb 11th at 8am CST. I will post the presentations over six weeks (3 mid-semester, 3 end of semester, approximately 3 or 4 a week). Same guidelines apply as stated above in the discussion section when commenting on these presentations, you need to have 2 questions or comments on different posts by Friday of each week. If it is your week to present, you are responsible for frequently logging into the discussion board and responding to comments. Presentations should be concise as students are responsible for viewing all presentations and filling out evaluations. Approximately 10 – 15 minutes should suffice depending on the virus. Presentations significantly shorter or longer will not receive full credit (aim for 5-15 slides, avoid wordy slides, and be sure to use references).

Short Presentations

We will have questions that require further research to answer. Answer these questions with references and create a short presentation (4-7 min). You will post your video to the discussion board by April 22nd at 8am CST. You will be responsible for viewing and commenting on three presentations by April 26th. Final discussion on these topics will finish on April 29th.

Academic Dishonesty

Plagiarism will not be tolerated, please refer to the student handbook or ask me for more clarification on the subject if unsure what constitutes plagiarism. It is expected students work independently on assignments unless otherwise stated by the instructor. Group work where not specified will be considered cheating and students will receive a zero for that assignment. Multiple offenses will result in the student(s) receiving a failing grade for the course and possible removal from the program.

Withdraw (W) and Incomplete (I)

In unusual circumstances beyond the student's control, an incomplete (I) may be issued. The (I) is issued as a final grade with the student having 12 months to complete the necessary work. If the coursework is not completed in this time the (I) will be converted to a failing grade (F) on the student's transcript. Students may withdraw from the course before 9 weeks have been completed and a (W) will appear on the transcript. Students are responsible for filling out the necessary paperwork to complete this process. Instructors are not able to withdraw students. If the student drops the class, the (W) will not contribute to the student's overall GPA.

Student Accommodations

Students with Disabilities

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Disability Services for Students office, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu

Students Who are Pregnant

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact Sue Pedersen in Student Health, 308-865-8218. The following link provides information for students and faculty regarding pregnancy rights. <http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students>

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault

Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599

Campus Police (or Security) 308-865-8911

Title IX Coordinator 308-865-8655

Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

Preparation for class	Dates	Schedule	Assignment
Vol 1. Ch 1	Jan 8	Introduction	Discussion 1
Vol 1. Ch 2	Jan 15	Infectious Cycle	Discussion 2
Vol 1. Ch 3	Jan 22	Genome	Discussion 3
Vol 1. Ch 4	Jan 29	Structure	Case Study
Vol 1. Ch 5	Feb 5	Attachment and Entry	Discussion 4
Vol 1. Ch 6, 7, 8	Feb 12	RNA synthesis	Discussion 5
Vol 1. Ch 9	Feb 19	DNA Replication	Discussion 6, Presentations
Vol 1. Ch 10, 11	Feb 26	Processing, Protein Synthesis	Discussion 7, Presentations
Vol 1. Ch 13	Mar 5	Assembly, Exit, Maturation	Case Study, Presentations
Vol 1. Ch 14	Mar 12	The Infected Cell, Exam 1	
	Mar 19	Spring Break	
Vol 2. Ch 2	Mar 26	Barriers	Discussion 8, Presentations
Vol 2. Ch 3, 4	Apr 2	Immune System	Discussion 9, Presentations
Vol 2. Ch 8	Apr 9	Vaccines	Discussion 10, Presentations
Vol 2. Ch 5	Apr 16	Mechanisms of Pathogenesis	Case Study
Vol 2. Ch 10, 11	Apr 23	Evolution and Emergence	Short Presentations, Disc.11
	Apr 26	Exam 2 (Due May 1st)	