

**General Virology MICR 4351 - CRN 13956** **Fall 2015**

**INSTRUCTOR:** Dr. Kyle L. Johnson, Department of Biological Sciences

**OFFICE:** Biosciences Building, 3.148

**PHONE:** 747-6889

**EMAIL:** [kljohnson@utep.edu](mailto:kljohnson@utep.edu)

**OFFICE HOURS:** MW, 1:30 p.m. - 2:50 p.m. or by appointment

**LECTURE:** MW, 3:00-4:20, CRBL C205

**TEXTBOOK:** Fundamentals of Molecular Virology, 2<sup>nd</sup> Edition  
Nicholas H. Acheson

### **COURSE OBJECTIVES**

This course provides an integrated approach to studying molecular virology and the pathogenesis of animal viruses. Our objectives are:

1. To understand the molecular mechanisms of cell attachment and entry, viral genome replication, transcription, translation, and assembly of virus particles, including the virus-host interactions involved in these processes, and the basic mechanisms of viral pathogenesis
2. To develop familiarity with and understanding of standard methods and procedures used in virology research
3. To develop key scientific writing skills to facilitate communication with colleagues in academic and professional settings
4. To build a foundation of basic scientific principles in order to interpret the key issues facing the fields of virology and public health

### **COURSE GOALS**

1. Learn the fundamental concepts of molecular virology
2. Learn to critically evaluate papers from the current virology literature
3. Apply the concepts you've learned
4. Extrapolate information and facts from what you already know
5. Communicate your understanding of virology both orally and in writing

### **COURSE APPROACH**

Each 90-minute class session will combine my lectures with cooperative learning activities. These activities are designed to give you the opportunity to participate in the learning process. In the first class session we will form groups of 5 students based on functional roles that you will help define. You will remain a member of your group for the duration of the semester. We will use the groups for class discussions, group-learning exercises, and problem-solving assignments. The in-class activities will give each of you the opportunity to discuss issues that are posed to the class and may include course material from your textbook or new material not presented to you beforehand.

**Blackboard.** I will post all course materials on Blackboard. It is your responsibility to download anything required for the class session and to bring it with you to class. I strongly recommend that you visit the course Blackboard site before each class. RATs will be given on Blackboard.

**This Week in Virology** (TWiV; <http://www.twiv.tv>). This Week in Virology is a podcast, or electronic netcast, about viruses. It is presented by several noted science professors, mostly virologists, at universities across the U.S. The goal of these innovative programs is to have informal conversations about viruses that are accessible to anyone, regardless of their backgrounds. There are 95 podcasts in the TwiV archive with new episodes added every week. Please feel free to explore TWiV as much or as little as you like. We will discuss some relevant TWiV podcasts during the course of the semester - the titles of the specific articles will be posted on Blackboard. You can also follow TWiV on iTunes, RSS, Twitter, etc.

**The University Writing Center** (<http://academics.utep.edu/writingcenter>). The UWC is located in room 227 of the Library. They offer writing assistance to all students, free of charge. The Center's services include help with analyzing your audience; understanding different types of writing (e.g., response papers, research reports, summaries, and arguments); brainstorming ideas and organizing your thoughts; finding the right words to express yourselves; deciding on the best way to revise your drafts; learning how to correct grammatical errors; and properly documenting your sources (this information comes from the UWC website).

### **CLASS POLICIES**

**MISSED EXAMS.** If you know ahead of time that you will not be able to take an exam on the scheduled date, notify me as soon as possible and I will allow you to take the exam early, with no penalty. If you miss an exam and you can provide **PROOF** for your reasonable absence, the exam will be rescheduled at my convenience but must be taken before the graded exam is distributed to the class. If you miss the exam, and you cannot provide proof for your absence, you will NOT be allowed to make it up.

**LATE HOMEWORK.** Homework packets are due at the beginning of class **ONLY** on the due date (see schedule) **WITH NO EXCEPTIONS**. LATE homework will **NOT** be accepted. Drafts and final copies of homework assignments must be typewritten in a legible font and will be accepted **ONLY** in class (**NEVER** by e-mail). Failure to turn an assignment in on time will result in an automatic zero.

**HONORS AND GRADUATE CREDIT.** Please see me by September 11 if you wish to take this course for honors credit. In addition to the class requirements outlined below, I will assign a research paper on a topic relevant to current virology. An outline of your paper must be approved by November 18, and the paper is due no later than November 27.

**COURTESY.** As a courtesy to your classmates, please give your full attention to all speakers and limit your in-class discussions to topics related to virology. Cell-phones and pagers must be turned off or set to silent mode for the duration of the class sessions. Tablet, laptop, and notebook computers are permitted ONLY if used for class-related activities - they must be turned OFF during exams. Please be on time for class - it disturbs the class when you arrive late.

**ACADEMIC DISHONESTY.** It is the official policy of the University of Texas at El Paso that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Please see the Office of Student Conduct and Conflict Resolution (OSCCR) website at <http://sa.utep.edu/osccr/> for details.

**DISABILITIES.** If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, by email to [cass@utep.edu](mailto:cass@utep.edu), or go to Union Building East, Room 106. For additional information, please visit the CASS website at <http://www.utep.edu/CASS>. *CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.*

**IMPORTANT DATES.** Please keep in mind the following important dates from the University calendar in case you need them. **Course drop deadline:** October 30; **deadline to submit candidates' names for Commencement Program:** November 13; **last day of classes and complete withdrawal from the University:** December 4; **Dead Day:** December 4. **Commencement:** December 12; **Final grades available to students online:** December 21.

### **GRADING SYSTEM**

Your grade will be based on a comprehensive assessment of your skills and their development throughout the course of the semester, using the following criteria.

**1. Homework.** Two individual homework assignments will be given. The homework is designed to promote critical thinking and written communication skills. Essential elements of each homework assignment include preparation of a written, nearly final draft, participation in the corresponding UWC workshop, and editing your draft to include the reviewers' comments, which also must be turned in on the due date. Assignments will be posted on Blackboard. Homework must be typewritten in a legible font. It will be graded for spelling, grammar, and content. Homework will be accepted ONLY on the due date and ONLY in class (NEVER by e-mail), WITH NO EXCEPTIONS. LATE homework will NOT be accepted and failure to turn in an on-time assignment will result in a score of zero.

**2. In-class Exercises (Molecular Toolkit).** You will be divided into six small groups of five or six members each. These are problem-based learning sessions, which will take place in your small groups. They focus on your ability to integrate basic science to the solution of research or clinical problems and will encourage you to work together, to develop critical thinking, to improve communication skills, and to get to know one another better. These exercises are open-book: bring any notes or texts you might find helpful.

**3. Final Paper.** Each GROUP will collaborate to prepare a 4-page final paper worth 200 points. The paper will involve synthesis of the materials that each group member develops during the course of the homework assignments. It is due IN CLASS on November 24.

**4. Exams.** A total of three exams will be given during the semester, each worth 100 points. The exams will test your understanding of all of the materials covered in the textbook, in class, and on homework assignments, and your ability to APPLY the concepts you have learned. Expect that up to 25% of each exam could include material from the previous exam. Exams will combine multiple-choice and short-answer questions.

**In summary,**

Homework	200 points (2 assignments/100 pts each)	= 20% of total grade
In-class Exercises	300 points	= 30%
Final Paper	200 points	= 20%
Exams	300 points (3 exams/100 pts each)	= 30%
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Total	1000 points	

where,

- A = 900 - 1000
- B = 800 - 899
- C = 700 - 799
- D = 600 - 699
- F = 599 and below

**Grading is NOT based on a curve. You will each EARN a grade that reflects the effort you put into the course and the knowledge you have gained.**

Please note that the exact date on which we will discuss each topic is subject to change, depending on the pace of the course.

Session	Date	TOPIC(S)	Reading
1	Aug. 24	Team Formation	--
2	Aug. 26	Introduction	Ch. 1
3	Aug. 31	Virus structure and assembly	Ch. 2
4	Sept. 2	Virus classification	Ch. 3
--	Sept. 7	<b>Labor Day - no classes</b>	--
5	Sept. 9	Virus entry	Ch. 4
6	Sept. 14	<b>UWC Workshop 1 (HW 1 draft due)</b>	--
7	Sept. 16	Positive strand RNA: picornaviruses	Ch. 11
8	Sept. 21	Positive strand RNA: flavi & togaviruses; <b>HW 1 paper due</b>	Ch. 12, 13
9	Sept. 23	Positive strand RNA: coronaviruses	Ch. 14
10	Sept. 28	<b>EXAM 1</b>	--
11	Sept. 30	Minus strand RNA: paramyxo, rhabdo	Ch. 15
12	Oct. 5	Minus strand RNA: filoviruses	Ch. 16
13	Oct. 7	Minus strand RNA: orthomyxoviruses	Ch. 18
14	Oct. 12	Double-stranded RNA: reoviruses	Ch. 19
15	Oct. 14	<b>UWC Workshop 2 (HW 2 draft due)</b>	--
16	Oct. 19	Small DNA viruses: parvo, polyoma	Ch. 20, 21
17	Oct. 21	Small DNA viruses: papilloma	Ch. 22
18	Oct. 26	<b>EXAM 2</b>	--
19	Oct. 28	Larger DNA viruses: adeno	Ch. 23
20	Nov. 2	Larger DNA viruses: herpesviruses <b>HW 2 paper due</b>	Ch. 24
21	Nov. 4	Larger DNA viruses: poxviruses	Ch. 26
22	Nov. 9	Viruses that use RT: Retroviruses	Ch. 28
23	Nov. 11	<b>UWC Workshop 3 (Paper draft due)</b>	--
24	Nov. 16	Viruses that use RT: HIV	Ch. 29
25	Nov. 18	Viruses that use RT: Hepatitis B virus	Ch. 30
26	Nov. 23	Viroids, satellites, and prions	Ch. 31, 32
27	Nov. 25	Immune responses to virus infection <b>Final paper due in class</b>	Ch. 33, 34
--	Nov. 26-27	<b>Thanksgiving Break-no classes</b>	--
28	Nov. 30	Current Topics in Virology	TBA
29	Dec. 2	<b>EXAM 3</b>	--

## DUE DATES FOR HOMEWORK AND EXAMS

Session	Date	Assignment Due
1	Aug. 24	
2	Aug. 26	
--	Aug. 31	
3	Sept. 2	
4	Sept. 7	Labor Day - no classes
5	Sept. 9	
6	Sept. 14	UWC Workshop 1 in class (HW1 draft due)
7	Sept. 16	
8	Sept. 21	HW 1 paper due
9	Sept. 23	
10	Sept. 28	EXAM 1
11	Sept. 30	
12	Oct. 5	
13	Oct. 7	
14	Oct. 12	
15	Oct. 14	UWC Workshop 2 in class (HW2 draft due)
16	Oct. 19	
17	Oct. 21	
18	Oct. 26	EXAM 2
19	Oct. 28	
20	Nov. 2	Homework 2 due
21	Nov. 4	
22	Nov. 9	
23	Nov. 11	UWC Workshop 3 in class (paper draft due)
24	Nov. 16	
25	Nov. 18	
26	Nov. 23	
27	Nov. 25	Final paper due in class
28	Nov. 30	
29	Dec. 2	EXAM 3