

# Biology 315: Virology Syllabus

## Course Overview:

### Lecture Info:

Room = CBB 131

Times = MW 5:00pm – 6:15pm

### Important Dates:

Exams (all in CBB 135, each covering ~5 weeks):

#1 = 10/12 ; #2 = 11/16 ; #3 (final) = 12/21 @ 5:00pm

Project Dates (due @ midnight, unless in-class):

Chart Fill-In = 9/28 ; Library Date = TBD, no assignment ; First Full Rough Draft = 10/26

\*Peer Review = due by 11/2 ; Full Written Project = 11/23 ; Hallway Displays = 12/7

### Instructor:

Lindsay R. Dresang, Ph.D.

Office hours: CBB 313, Mondays & Wednesdays @ 3:00pm (or by appointment)

E-mail: [LDresang@uwsp.edu](mailto:LDresang@uwsp.edu) (Note that I do not have an office phone.)

**Formal Course Description:** (Prereq. = BIOL 210) [This course looks at] What viruses are, how they are transmitted, replicated, evade destruction, cause disease, prevent disease, and how they can be utilized for advanced molecular experiments, disease treatments, and vaccine production. Multiple specific viruses and their importance (and controversy) across human history will also be studied.

**More Broadly...** Studying viruses not only expands our knowledge of what a virus is like and what it can / cannot do in different circumstances, it also reveals how cells function normally or abnormally through infection, disease, and even cancer. Indeed, the study of viruses has influenced the fields of cellular and molecular biology, genetics, physiology, cancer biology, immunology, epidemiology, biochemistry, bioinformatics, biostatistics, and other scientific fields. Virology has also lent itself to considerable controversy throughout history in terms of ethics in health care, intellectual property rights, and politics, just to name a few. However, we also *positively* recognize how viruses can improve host health naturally, or even artificially by hijacking them to fight different diseases.

### Course Objectives:

- 1) Describe what constitutes a virus, while also recognizing how they differ from other biological entities
- 2) Classify viruses according to recognized conventions (ICTV & Baltimore strategies) and be able to compare / contrast major orders / families of viruses, with some species or strain specific recall
- 3) Understand the main stages of the infectious cycle (virion stage / reservoir, transmission, entry, persistence, and exit) and explain what roles different organisms and/or the environment have to play during these stages
- 4) Review experimental techniques in order to evaluate experimental data and discuss molecular virology applications
- 5) Summarize key events in viral history and judge how they have impacted human history, both scientifically and ethically

### Required Materials:

Shors T. 2017. Understanding Viruses, Ed. 3, Jones & Bartlett Learning, Burlington, MA.

Murphy F.A. 2020. Foundations of Virology, Ed. 2, Unprinted eBook / ppt. access through author's website (previous edition published through Infinity Publishing, 2012).

### Course Requirements and Grading:

#### Letter Grades (rounded at the hundredths):

A = 100-94%	A- = 93.9-90%
B+ = 89.9-86%	B- = 81.9-78%
C+ = 77.9-74%	C- = 69.9-66%
D+ = 65.9-62%	D = 61.9-60%
	F ≤ 59.9%

#### Point Distribution:

<b>Graded Item</b>	<b>Points</b>
Assignments / Participation (individual assign. parsed from total; single drop option not guaranteed)	25
Exam 1	50
2	50
3 <i>non-cumulative component</i>	50
<i>cumulative component</i>	25
Project (individual components will be parsed from total)	50
<b>Total</b>	<b>250 pts</b>
*Peer review extra credit = 2 × 5	=10pts

**Exams:** Exams will test your ability to recall specific facts, vocabulary terms, evaluate the importance/severity of different viral / infectious qualities, propose appropriate experiments to further evaluate a set of observations, reconstruct normal vs. pathological pathways, discuss the etiology of different diseases discussed, etceteras. There will be a range of question types and difficulty per question for each exam. We will also be delving into many historical and ethical contexts, and you will be required to recall and/or evaluate select events in viral history. Exams will cover the content reviewed per 5 week period, however, the third exam time will also involve a separate, additional **25pt cumulative component** in which you will need to categorize, compare, and contrast the diverse group of viruses learned throughout the course.

**The Project:** You will be infected! Not literally, of course, but I will assign you a specific virus to review throughout the term. You will first need to provide a filled-in table for your virus corresponding to typical viral properties (i.e., its genome composition / length, its capsid / envelope morphology, its host range, its mode of infection, etc.). This information will be shared with the entire class for part of the cumulative viral diversity assessment, in addition to other viruses we discuss in class. You will then need to combine this information along with a broader context of the virus, including things like its impact on human / agricultural / other health, known outbreaks, unique properties, individuals of significance associated with the virus, historical contexts, etc. A written report will be due later in the term. Finally, you will need to select a subset of information to construct a 2-page hallway display print for viewing during the last 2 weeks of class (it will also be posted on canvas). *You should know that projects which fail an accuracy threshold (incorrect facts, misinformation, bias, disparaging statements, etc.) may not be displayed; it will not result in removal of the virus from the cumulative diversity list.* Guidelines and rubrics will be posted on the canvas website.

### **Assignments & Absence Policy:**

Throughout the term I will ask that you answer some questions to confirm that you are grasping the material. That way I also know when I need to speed up or slow down. These assignments may be handed out and subsequently answered in class, so COME TO CLASS! On occasion, there will instead be take-home assignments, but you must be willing to discuss these answers in groups during the following class period. Your participation in these discussions / completion of the assignments (and then technically your attendance) make up 15% of your grade. If you know you are going to be absent, you must let me know. I will consider justifiable absences when granting assignment make-ups, but that decision is in my court. There may be enough assignments for some type of dropped lowest grade option, but this possibility is not guaranteed.

### **Accommodations:**

In compliance with the Americans with Disabilities Act (ADA), I will make every effort to honor requests for reasonable accommodations made by individuals with disabilities. If you have a disability and require accommodations, please register with the Disability and Assistive Technology Center and *let me know as soon as possible*. Requests for accommodations, including university-sanctioned extra-curricular event conflicts, can be responded to most effectively if I receive the requests early. Examples of accommodations include extended exam durations, scheduling an alternate test site with proctor for quieter test-taking, use of ear plugs, etceteras. Such requests are confidential. More information about the ADA at UWSP can be found under this subsection of the human resources webpage at <https://www.uwsp.edu/hr/Pages/Affirmative%20Action/ADA.aspx>.

### **UWSP Community Bill of Rights and Responsibilities:**

UWSP values a safe, honest, respectful, and inviting learning environment. A set of expectations for students and instructors, known as Student Rights and Responsibilities, is intended to help establish a positive living and learning environment. For more information go to the webpage for the Dean of Students, which outlines expectations for a respectful learning environment, as well as the an overview on school policies regarding academic misconduct. The minimum penalty for violating this policy is a recorded zero for the assignment in question. The Dean of Students webpage is found at: <https://www.uwsp.edu/dos/Pages/default.aspx>.