ANIMAL VIROLOGY - MICR 475 or 675
SPRING 2011

INSTRUCTOR: Eugene Berry, PhD
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LECTURE: Tu & Th 9:30 to 10:45 AM
Stevens 230.


COURSE TOPICS: Listed in order of discussion.

**TOPIC**
- Introduction to the Science of Virology
  - Why Study Viruses?
  - Virus Properties and Definition
  - Are viruses alive? AND Origin of viruses
  - Methods of Molecular Biology and Genetic Analysis

**Virus Structure and Composition**
- Particles
- Capsids
- Envelopes
- Virus Classification

**Virus Replication Cycles**
- Structure and Complexity of Genomes
- Genetics and Mutations
- Evolution and Epidemiology
- Replication Cycle
  - DNA Viruses
  - RNA Viruses
  - Receptors, Attachment, Entry to Assembly, Maturation, Release
  - Transcription and mRNA Processing, Translation, Transport
  - Transcriptional and Translational Control and Regulation

**Infection and Disease**
- Pathogenesis -- Virus-Host Interactions
- Outcomes of Infections – Acute, Persistence, Latency, Cancer
- Emerging Viruses
- Prevention and Control of Viral Diseases

**Host Response to Viral Infections**

**Replication and Pathogenesis of Virus Families**
- Diseases caused by:
  - DNA Viruses: Adenoviruses, Papovaviruses, Papillomaviruses, Herpesviruses, Parvoviruses, Poxviruses, Hepadnaviruses
  - RNA Viruses: Picornaviruses, Togaviruses, Flaviviruses, Caliciviruses, Rhabdoviruses, Paramyxoviruses, Orthomyxoviruses, Reoviruses, Retroviruses

I will assign (both in class and on Blackboard) specific, required reading from the text and other sources as we get to new topics. It will be very important for you to have read the material ahead of time, because it is my expectation that you will participate during the lectures.

Any student with disabilities or other special needs, who requires special accommodations in this course, is asked to share these concerns or requests with the instructor.
Honor System: Please remember when taking a College of Agriculture course that you are under the honor system. The Honor System (http://www.ag.ndsu.edu/academics/honor.htm) operates to prevent and stop cheating, as well as penalizing those who cheat. Cases can be reported to any Honor Commission member, your instructor, or the Dean of Agriculture. Each examination will carry an honor pledge that you must sign.

GRADING: The course grade will be determined by 3 exams during the semester, a comprehensive final exam, 5 online quizzes, 5 HUH? assignments, and 2 “virus-of-the-week” small group assignments.

- the first exam will be on Thursday, February 3
- the second exam will be given on Thursday, March 10
- the third exam will be given on Thursday, April 14
- the final exam is scheduled for Wednesday, May 11 at 1:00 to 3:00 PM

The 3 exams given during the semester will be worth a total of 300 points (100/exam). The final exam will be comprehensive, and will be worth 200 points. The 5 online quizzes will be worth 100 points (20/quiz). The 5 HUH? assignments will be worth 100 points (20/assignment). The 2 small group assignments will be worth 100 points (50/assignment).

Exams will consist of a number of different types of questions, not any single type of question, and will possibly include fill-in-the-blank, short answer, matching, and short essay. Learning a new area of science, such as Virology, is in part learning a new language. Therefore, knowing the definitions of words and terms specific to virology will be helpful. Missing an exam without a prior arrangement will result in a "0" on that exam – you will not be allowed to makeup an exam if you do not make a prior arrangement.

The 5 online quizzes will be based on lecture material and reading assignments from the textbook or from other material handed out in class. The questions might be multiple choice, fill-in-the-blank, short answer, short essay type questions. The quizzes will be available on the BLACKBOARD WEBSITE for 3 days. The quizzes will be evenly spaced throughout the semester and announced the week before being made available.

There will be 5 HUH? assignments required of all students during the semester. These will consist of you asking a thoughtful, relevant question and then attempting to answer the question by way of a short essay. The question may be about any area of virology and could be how, what, why type of questions. These must be typed, double-spaced, and any literature cited must be referenced at the end of the text. These writing assignments are meant as a way of getting you to read some contemporary research in virology, to think about viruses and the problems associated with them, and to obtain some additional experience in scientific writing.

There will be 2 small group “virus of the week” assignments during the semester. Each group will be asked to research a specific virus, synthesize and analyze the research, and then put together a concise and understandable communication on that virus. The final product may be a paper, poster, website, or some other type of presentation of the topic – each group will be asked to present one of their “final products” in class at some point during the semester. Details of how to make the presentation will be provided. Group membership and due dates for each assignment will be made during the first week of the semester.

Course Grades will be determined as follows:

90% + = "A"; 80 - 89% = "B"; 70 - 79% = "C"; 60 - 69% = "D"; below 60% = "F"