

## **Biology 440**

## **Virology**

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### **Textbook:**

“The Biology of Viruses” by Bruce A. Voyles, 2<sup>nd</sup> Ed. 2002. Publisher: McGraw-Hill

### **Course description:**

A study of the basic characteristics of plant, animal and bacterial viruses. The composition, morphology, multiplication, cultivation, and the various replication strategies are included.

Lab exercises are designed to illustrate and clarify basic concepts and familiarize students with the methods of studying viruses.

### **Tests:**

There will three scheduled tests, each worth 30%.

Discussion/presentation: 10%.

Everyone is expected to be present for tests at the time they are given. If you are going to miss a test and have a legitimate excuse, i.e., health center excuse for illness, **notification must be given to me before** the test is given and make arrangements for a makeup.

### **Class participation:**

Attendance to all lecture and laboratory classes is expected of all students. Students are expected to be actively involved in class discussion by raising and answering questions.

### **Grade calculation:**

Grade Scale: 100-90% A, 89-80% B, 79-70% C, 69-60% D, <60 F.

### **Class preparation**

Students are assumed to have good reading, writing and math skills. It is your responsibility to read the syllabus and prepare in advance for course materials. You will be responsible for textbook readings before the topics are discussed. To better understand the material, it is highly recommended rereading the material following lecture and class discussion.

If the syllabus is revised at any time during the semester, the revisions will be announced in class. You will be responsible for the revisions, even if you are absent at the time revisions are announced.

## Virology (BIOL440) Lecture Schedule

| Week | Lecture Topics  | Chapter |
|------|---|---------|
| 1    | Introduction  | 1       |
| 2    | Viruses and host cells                                | 1       |
| 3    | Getting into the host cell-1                          | 2       |
| 4    | Getting into the host cell-2                          | 2       |
| 5    | Replication in Prokaryotic hosts-1<br>Exam 1          | 3       |
| 6    | Replication in prokaryotic hosts-2                    | 3       |
| 7    | Replication in eukaryotic hosts-RNA viruses           | 4       |
| 8    | Replication in eukaryotic hosts-RNA viruses           | 4       |
| 9    | Replication in eukaryotic hosts-DNA viruses           | 5       |
| 10   | Replication in eukaryotic hosts-DNA viruses<br>Exam 2 | 5       |
| 11   | Maturation and release                                | 6       |
| 12   | Maturation and release                                | 6       |
| 13   | Effects of viral infection on host                    | 7       |
| 14   | Effects of viral infection on host                    | 8       |
| 15   | Viral evolution and viral emergence                   | 9       |
| 16   | Final exam  |         |

NOTE: The syllabus is subject to change

**Lab manual:** Handout

### **Laboratory reports and evaluation:**

Lab report is due one week after the conclusion of the lab. Delayed report will be deducted 10% for each day of delay.

Students are evaluated by take home questions: 20%, and lab report: 80%.

## Virology (BIOL440) Laboratory Schedule

| Week | Lab exercises  |
|------|--|
| 1    | introduction   |
| 2    | Bacteriophage plaque count                                     |
| 3    | Bacteriophage plaque count continued                           |
| 4    | One-step growth curve  |
| 5    | One step-growth curve continued                                |
| 6    | Multiplicity reactivation to bacteriophage                     |
| 7    | Multiplicity reactivation to bacteriophage continued           |
| 8    | Midterm  |
| 9    | Bacteriophage isolation & Characterization Project: enrichment |

- 10 Bacteriophage isolation & Characterization Project: titration
- 11 Bacteriophage isolation & Characterization Project: electron microscopy
- 12 Bacteriophage isolation & Characterization Project: genotyping 1
- 13 Bacteriophage isolation & Characterization Project: genotyping 2
- 14 Bacteriophage isolation & Characterization Project: genotyping 3
- 15 Final exam

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<http://www.asm.org>

The web site of the American Society for Microbiologists offers free access of eleven online journals.