

BIOL-4610-SDF VIROLOGY

Spring 2018 (WEB)

Instructor: Hua Shen, Ph.D.

E-mail: hshen1@lakeheadu.ca

Office hour: Mondays and Wednesdays 10:00-11:30 AM (by phone)

COURSE DESCRIPTION

The course will study viral structure, genome and the common reactions that must be completed by all viruses for successful reproduction within a host cell and survival and spread within a host population. The interactions of viruses with host organisms, and how these lead to disease are presented with examples of representative animal and human viruses.

NOTE: Knowledge on cell biology is essential for success in this course.

E-TEXTBOOK: *Virology* - this book is made available online (<http://www.microbiologybook.org/book/virol-sta.htm>) by South Carolina University School of Medicine (SCUSM). I found this book very helpful.

GRADING: Grade for the course is calculated based on results of three tests. Each worth one third of the total of 100%.

LECTURE NOTES AND VIDEO: Lecture notes and a video production of the notes are available at the course D2L site "Course content".

HOW TO STUDY FOR QUIZZES AND TESTS?

1. Memorize basic facts, specifics because it is easier to think broadly and deeply about texts and ideas if you have material ready in mind to think with.
2. Make notes for key concepts and terms.
3. Discern associated concepts by comparison (for commonality) and contrast (for differences)
4. Relate concepts vertically by finding order of a process.
5. Write down answers for study questions rather than going through the answer in mind.
6. Marking your text and notes for quick access.

INFORMATION ON QUIZZES AND TESTS

- All tests are conducted online.
- **If you encounter technique problems that disables the completion of the quiz/test, you should contact the distant learning office for help, the number is 807-346-7730.** (suggestion: copy this number where you have handy access in case internet connection problem)

1. Question Format:

Questions in each quiz and test may be in a variety of formats – multiple choice, true/false, match-up, ordering, short essay etc.

2. Marking and Grading

Step 1: automatic marking of questions of **multiple choice, true/false, match-up, ordering, fill in** by the computer against my answer key, so you will receive an immediate grade for these responses after submitting your answers.

- I also go over these responses as well in case there are any irregularities.
- Thus the **mark you receive *immediately*** after submitting your test is only part of your final mark on the test – it does not reflect the answers for any essay questions which will be marked manually.

Step 2: The answers for **short essay** questions are marked manually by me. The earned value of these answers will then be added to your final grade. This means your final mark on the test might well change a bit (i.e. go up) within a day or two after you finish the test.

3. Time Limit and Time Frame

Each test is strictly **time limited**, about 1 minute per point worth depending on the type of question.

Each test consists a number of questions worth a total points of 60 or less. Each test will **open** for student response from 12:01 AM - 11:59 PM ET of the designated date.

- Students may do their test at any point within this time frame – though the cut-off point is firm: do not leave the quiz/test until too late in the evening.
- This allows students to schedule their test when it will be best for them – e.g. before/after work, around elder/childcare, etc.
- The tests are tightly time controlled to assess what you have learned - NOT what you can look up during the test time.
- You may have time to look up a few answers, but the tight time constraint is designed to test what you have actually internalized -- learned, mastered -- during the course.
- You will not have time to look up very many answers during the test, so learn the material beforehand.

4. Allowable Materials

These tests are open-book, open-note, open-Internet.

- You are free to use any non-human resources available to you.
- That means you are not allowed to have someone else write your test, ask another person for the answers, etc.: that would constitute academic dishonesty.

5. Policy on missed tests

- a. Missed tests will receive a 0% grade. Students are expected to finish the tests within the time frame of the respective designated date.
- b. The test dates are fixed and can only be moved in the most dire and documented circumstances. In situations where students miss tests due to valid reasons for example:
 - serious illness
 - serious illness in the family
 - death in the family

The student is required to provide a formal documentation (Physician's Note, Death certificate, etc) to be given the opportunity for an alternative test at a later date.

6. Policy on test paper

The test papers and questions are not released to students as they are part of a larger test bank. However, we do have some options for reviewing the test

together:

a) If you had difficulties with individual questions or sections of the test, please outline these concerns as specifically as possible in an email, and I will be happy to address them. I can walk you through the problematic question(s), explain the expected response(s), and/or direct you to (online) resources that can help you with those matters.

b) If you did not do as well as you had hoped and are unsure of what was problematic in your test, again email me, and I will review your test and provide you with a personalized summary of the skills/knowledge areas that need to be strengthened.

c) Or, if you are local to Thunder Bay, you may also make an appointment to meet with me at the Lakehead University Chancellor Paterson library. We can go through your test together and review any problem areas.

d) If that is not possible, call me (647-556-4451) during office hours (Mondays and Wednesdays 10:00-11:30 AM), and I will go over the test with you on the phone, stopping at each question you had difficulty with to review the issues and content you should revisit and/or the skills you should strengthen before the next test.

Please feel free to avail yourself of any of these options! Also, know that I review the tests and class statistics after every test period. If there are questions that were problematic for a significant segment of the class, I go over the issues and content of those question(s) in an email that I then send to the class as a whole. That addresses any broad areas of difficulty.

LECTURE SCHEDULE (tentative)

Week 1 (May 1-6)

- | | |
|--|----------|
| 1. Virus: definition, property, and classification | Ch. 1, 5 |
| 2. Structure of viruses | Ch. 1 |

Week 2 (May 7-13)

- | | |
|--|-----------|
| 3. Viral infectious cycle | Ch. 2 |
| 4. RNA viruses replication strategy | Ch. 4 |
| 5. Plus sense RNA virus replication - Poliovirus | Ch. 4, 10 |

Test 1: Monday May 14

Week 3 (May 14-20)

- 6. Minus-sense RNA virus - Rabies virus Ch. 4
- 7. Segment minus-sense RNA virus - Influenza virus Ch. 4, 13
- 8. DNA virus replication strategies Ch. 3

Week 4 (May 21-27)

- 9. DNA virus - herpesvirus Ch. 11
 - 10. DNA tumor viruses - Papillomavirus Ch. 6: part 1
- Test 2. Monday May 28***

Week 5 (May 28-June 3)

- 11. RNA tumor viruses - Retrovirus Ch. 6: part 2; Ch. 7
- 12. Host defence - innate immunity Ch. 12
- 13. Viral infection and consequences

Week 6 (June 4 -10)

- 14. Vaccines Ch. 8
 - 15. Antivirals Ch. 9
- Test 3: Monday, June 11***