

BIOL 485 Senior Seminar Fall 2011

Viruses: Risks and Benefits

Syllabus

Tue/Thur 11:00-12:15 Kennedy 104

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Goals

Rhodes requires all of its students to participate in a senior capstone experience. The purpose of this experience is to allow students to integrate knowledge from different sources and to refine their writing and speaking skills. In this class we will accomplish these objectives as part of a seminar covering topics related to the risks and benefits of viruses to humans, society, and the environment. A seminar course is one in which the participants teach and learn from each other through reading, discussion and presentation.

Specifically, the department's goals for this senior seminar are to give you the opportunity to:

1. Learn and appreciate the biological information and principles involved in this topic.
2. Refine your critical thinking skills and the ability to integrate different sources of information into a coherent picture.
3. Understand and evaluate how science is done by finding, reading and discussing primary literature.
4. Advance your speaking and writing skills.

To achieve these goals, the first and second parts of the course will be organized and run differently, although both sections will require you to read and discuss scientific literature. To begin with, it is important for everyone in the class to learn basic background information about virology. In another type of course I might simply provide a series of lectures on relevant topics, but a seminar course provides you with the opportunity to learn by doing. Therefore, in the first half of the course you will work in groups to create a series of "lecture notes" about these topics. Typically, lecture preparation involves reading several sources on a topic to get a complete picture, deciding what information is relevant and important, and synthesizing all of the information into an organized, comprehensible format. As you do this work in the beginning of the semester, not only will you learn the important background information (which you undoubtedly will remember far longer than if you had merely listened to my lectures), but you will also gain experience that you will use in second part of the course.

During the second half of the semester, each of you will lead a class session on a specific topic. That class session will have two parts. In the first part, you will lead a discussion on a review article you have selected and assigned for class reading. In the second part, you will present the work from a primary research article. You will also submit a paper covering the topic. Throughout the course, you will discuss and critique each other's work in class and in writing much the same way scientific publications are peer reviewed.

Course Assignments and Evaluation: (details given below; 430 pts total)

- A. Create Lecture Notes (as lead group member) (50 pts)
- B. Lead discussion on a review article (50 pts)
- C. Present a research journal article (100 pts)
- D. Write a paper on the research topic (100 pts)
- E. Evaluate self/peers on presentations (1 pt each x 10) and papers (10 pts each x 2) (30 pts)
- F. Prepare exam questions and take final exam (70 pts)
- G. Participate (contribute to lecture notes and discussions) (30 pts)

Explanation of Assignments

(Due dates are underlined and hints are in italics in the text below)

A. Create Lecture Notes

Students will be paired into five groups. Each group will lead the class in creating a set of lecture notes on a particular topic of Virology. Each group will consult a different type of source for each of the five topics as defined below.

For each topic, all group members must read relevant sections in the assigned sources (see table below). You should meet at least briefly with your group before coming to class to review and discuss what you have found. Use this meeting time to clarify confusing information, and to decide what information from the reading is most relevant and what specific points you wish to make in class. Be sure to note any questions left unresolved. If you ask these questions during the class meeting, another group may be able to answer them for you based on their readings from a different source.

In class, the lead group will distribute an outline they developed as a logical organization of the material. As we discuss our way through the outline, each person should contribute some information to the construction of a "lecture" on the topic. Everyone should take notes on what is discussed, since everyone will be involved either in creating the set of notes for the class or critiquing the notes. As we construct the lecture, note how the information on the topic differs among the sources and consider what you liked and did not like. Did any source contradict another? Why might these differences exist? What sources left you feeling confident about the information you learned? Why? You will be going through much the same process a professor goes through when developing a new course.

Submission and Review of Lecture Notes

Group I is designated to create a written set of lecture notes for Topic 1 based on the class discussion. Groups II, III, IV and V write notes for Topics 2a, 2b, 3 and 4, respectively. Drawings or diagrams may be included in the document or as an appendix. The document(s) must be emailed to the class distribution list (12492@rhodes.edu) by midnight on the Sunday before the class meeting when the review of lecture notes is scheduled. Before the review session, all other students in the class will be responsible for reading the notes carefully and comparing them to the notes they took on the topic. In class when the review is scheduled, we will go over the submitted lecture notes, and everyone will be asked to make corrections (if necessary) and to decide whether the notes are clear, organized, and sufficiently detailed. If

there is need for clarification or correction, the class will provide the authors with instructions for revisions and the finalized notes will be submitted to the professor before the following class period.

Group/Source Types for each Topic (lead group in italics)

TOPIC 1

<u>Group</u>	<u>Book</u>
<i>I</i>	<i>Advanced Biology textbooks</i>
II	Intro Biology textbooks (Campbell)
III	Internet (e.g. Wikipedia)
IV	Reviews published in Journals
V	Fields Virology

TOPIC 2a

<u>Group</u>	<u>Book</u>
I	Fields Virology
<i>II</i>	<i>Advanced Biology textbooks</i>
III	Intro Biology textbooks (Campbell)
IV	Internet (e.g. Wikipedia)
V	Reviews published in Journals

TOPIC 2b

<u>Group</u>	<u>Book</u>
I	Reviews published in Journals
II	Fields Virology
<i>III</i>	<i>Advanced Biology textbooks</i>
IV	Intro Biology textbooks (Campbell)
V	Internet (e.g. Wikipedia)

TOPIC 3

<u>Group</u>	<u>Book</u>
I	Internet (e.g. Wikipedia)
II	Reviews published in Journals
III	Fields Virology
<i>IV</i>	<i>Advanced Biology textbooks</i>
V	Intro Biology textbooks (Campbell)

TOPIC 4

<u>Group</u>	<u>Book</u>
I	Intro Biology textbooks (Campbell)
II	Internet (e.g. Wikipedia)
III	Reviews published in Journals
IV	Fields Virology
<i>V</i>	<i>Advanced Biology textbooks</i>

B. Lead Discussion of a Review Article

Early in the semester, you will choose a topic for your discussion and presentation. Based on that topic and in consultation with the professor, you will choose a review article that the class will read prior to your discussion and presentation day. You must get the professor's approval for the article you've chosen at least two weeks prior to your discussion and the article will be posted for the class on Moodle at least one week before the discussion. All students must read the article and be prepared for discussion.

The discussion leader will give a brief overview of the article and place it in any necessary context which may be gleaned from additional sources. The discussion leader will have prepared a series of leading questions to guide the class through the important material in the review article during the allotted time. Everyone must take turns participating as the leader poses the questions. At the end, the leader will give a brief summary and perhaps add some additional information from relevant work published after the review. (Note: As indicated below, the discussion may be interrupted for the

presentation portion of the class period.) *A good quality discussion will depend on two things – well-constructed leading questions and full, informed audience participation.*

C. Present a Research Journal Article

Early in the semester, you will choose a topic for your discussion and presentation. Based on that topic and in consultation with the professor, you will choose a research journal article that the class will read prior to your discussion and presentation day. You must get the professor's approval for the article you've chosen at least two weeks prior to your presentation and the article will be posted for the class on Moodle at least one week before the presentation. All students must read the article to be prepared for class.

You should consult any background texts, reviews or other journal articles that are necessary to acquire a clear understanding of the article and the subject and experiments to be presented. You should plan your presentation to cover effectively the following points:

1. an explanation of the research question investigated
2. why it was investigated (the importance or significance of the question)
3. a brief description of the methods used (including sample sizes and repetitions)
4. the major results of the study
5. the conclusion(s) of the author(s)

You will have give your presentation on the same day as you lead discussion on the review article. You have the entire class period of 75 minutes available, and you may distribute your time as you see fit to cover both assignments. Generally, you should plan to spend about half of your time on discussion and half on presentation. Be sure to include some time (10-15 minutes) for questions and answers, particularly in reference to the journal article. To avoid exceeding these time limits, be sure to practice your presentation! You should have your PowerPoint file on a flash drive or loaded on the computer before class (and have a backup source of the file), and you should come in early to make sure that it works properly on the classroom computer system. Immediately after your presentation, email a copy to the PowerPoint file to the professor. One point is critical to remember: *Your talk should be an engaging, easy to follow lecture that prompts questions and discussion from your audience. It should NOT be a reading of the research paper you plan to turn in. The wording of papers is very different from that of oral presentations.* It also need not be an exhaustive treatment of every experiment in the paper; feel free to present the essential experiments in detail and simply make reference to supporting or confirming experiments.

D. Write a Paper on the Research Topic

A complete final copy of your paper is due by email to the professor before the start of class one week after your presentation. The paper should cover background information from the review for your discussion, the journal article used for your presentation, other supporting information, and any update on research more current than what was presented. The paper must be submitted by email as a MS-Word document, double-spaced, with a 12 point Times or Times New Roman font and 1 inch margins. It should be about 10-15 pages long (not including figures or literature cited section). The paper will be forwarded to two anonymous peer reviewers (see section on paper evaluations below). The content of your paper should be divided as follows:

1. Introduction: This part should provide background and explain why the topic is important or of interest. It should also set up a current question or issue to be addressed in the discussion. There should be substantial depth here, but it should be written so that anyone in the class can understand it. It should draw on a diversity of primary literature. (25 pts)
2. Discussion: This part should provide a logically organized presentation of the current critical issue(s) in the topic. It should address and give the most current answers (if known) to the key question(s) posed in the introduction. As in the introduction, this section should be based on recent primary literature, including the article discussed in your oral presentation. It also may include discussion of controversies found in the literature. (25 pts)
3. Summary: This brief section should recap the key points or conclusions. It should also state which side of any controversy you think is best supported (if appropriate) and where future research in this topic should go. (10 pts)
4. Literature Cited. Of course, here go the full citations from each source you used in your paper. Each paper listed here should be referenced in-text in your paper, and each reference in your paper should be listed in this section. See the Biology Writing Handbook on Moodle for the required citation format instructions and examples (10 pts.).

Each section, especially the introduction and discussion, should be extensively and appropriately referenced. *Failure to do so may result in a grade of 0 on the paper, or possibly a trip before the honor council.* Most of your references should be primary literature. *A minimum of 5 primary literature references are required,* and more than 5 are expected. How do you know what is primary literature? Be sure that you are clear on this before you proceed! Your paper will be read and evaluated by two anonymous reviewers so be sure to follow the guidelines provided.

E. Evaluate Self and Peers on Presentations and Papers

(No credit will be given for evaluations that are tardy, superficial or reflect an inability or unwillingness to critique).

1. For all student discussions and presentations: Following each student discussion and presentation, you must complete an evaluation questionnaire on Moodle to provide numerical ratings and specific written comments for the presenter. These must be completed on Moodle by noon the day following the presentation. The presenter will receive the anonymous responses and use them and his/her own perceptions to complete a self evaluation and arrive at a fair numerical grade. The presenter will submit to Dr. Lindquister a recommended grade and a written justification for the grade within two days of receiving the class responses. Dr. Lindquister will consider the written comments of the peer and self evaluations when doing his final evaluation and grading of the work.
2. For papers: Two students for each paper will be assigned to do anonymous evaluations of submitted papers. Peer evaluations are due one week after the paper is available. Copies of

the numerical grades and evaluations they complete will be given to the author of the paper, who will assign himself/herself a fair numerical grade. The author will then submit the grade and its written justification within three days of receiving the peer evaluations. (These time frames may be compressed for presentations near the end of the semester.) Dr. Lindquester will consider the written comments of the peer and self evaluations when doing his final evaluation and grading of the work.

F. Prepare exam questions and take final exam

Questions

For lectures: each member of the group will submit four questions (a total of 8 questions per topic) for the lecture notes they develop. These are due with the lecture notes.

For discussion/presentation sessions: the presenter will submit three exam questions. These are due with the paper at the start of class one week following the presentation.

Exam

Throughout the semester you will have submitted several exam questions. The criteria for these questions will be available in a document on Moodle. During the last few class periods, the class will meet to review the questions, select the best and most appropriate ones and work together to determine the best correct answer for each. The final exam will include the most appropriate and best written of these questions selected by the professor. It may also include an essay question written by the professor.

G. Participate

A seminar is only as good as its participants, and for a seminar to succeed, everyone needs to be present and ready to contribute. You are required to attend all classes and be on time. Late appearances and unexcused absences will result in a loss of points. Remember, the goal of a seminar is for us to learn from one another. If you are confused during a presentation, stop the presenter and ask a question. Your participation in that capacity will probably help others in the class to understand the concept better as well! At the end of the semester your performance will be rated approximately as follows:

- 30 pts -- participated frequently (at least once in all classes) and added substance to the discussion
- 20 pts -- participated frequently (at least once in all classes)
- 10 pts -- participated occasionally (not every class period)
- 5 pts -- participated rarely (once every couple of weeks), or questions and comments did not contribute much to the discussion
- 0 pts -- said something once or twice, or did not participate

Expectations regarding the Honor Code

1. All assignments described above are to be done by you. You may consult the professor for assistance in understanding and interpreting the review and journal article you present. Otherwise, all work in this class is to be your own original work.
2. When evaluating papers or presentations of peers it is your duty to be fair, honest and considerate with your criticism, and unbiased by your personal relationship (good or bad) with the presenter/author.
3. Any work submitted for this class must not have been used for a previous or concurrent class or research project.

Grading Scale

Final grades will be determined according to the following scale of percentages after rounding to the tenths place.

A	93-100	C	73-76.9
A-	90-92.9	C-	70-72.9
B+	87-89.9	D+	67-69.9
B	83-86.9	D	63-66.9
B-	80-82.9	D-	60-62.9
C+	77-79.9	F	0-59.9