Virology 2016 SPRING Syllabus

[BIOL 4259 - 001 and BIOL 5259 - 001]

Course URL: UNCC Moodle 2

Type	Time	Days	Where	Date Range
Class	**9:30 am - 12:15 pm**	Friday	Woodward Hall 154	Jan 15, 2015 – April 29, 2015 **FINAL EXAM May 6 [8-10:30 AM]**

Final Exam: May 6, 8-10:30 AM

Instructor: **Dr. Valery Grdzelishvili, Ph.D., Associate Professor**
Department of Biological Sciences (office: Woodward Hall 486B)
My URL: http://clas-pages.uncc.edu/valery-grdzelishvili/

Office Hours: Monday 2 - 3 PM
Office Hours: Thursday 2 - 3 PM
E-mail: vzgrdzel@uncc.edu

Objectives for student learning outcomes: This Virology course [Biology 4259/5259] is aimed at advanced undergraduates and graduate students to provide a contemporary understanding of how viruses are built, how they infect and replicate in host cells, how they spread, evolve and cause disease, and how infection of a host can be prevented. This course will provide a balanced approach to Virology, combining the molecular and clinical aspects of virology. While it is focused primarily on human and animal viruses, it will also discuss bacteriophages and plant viruses, as well as unusual virus-like agents (prions, viroids, etc.). In addition to traditional topics, this course will explain new "hot" trends in Virology, including: virus-based gene therapy; modern advances in vaccinology; "oncolytic" viruses to treat cancers; emerging viruses and potential bioterrorism agents; using bacteriophages and plant viruses to combat human and animal diseases.

Requirements for the course: Prerequisite: BIOL 3166 (Genetics) OR BIOL 4199 (Molecular Biology) OR BIOL 4250 (Microbiology) with grade of C or above.

Important: you are expected to have a solid knowledge of basic Cell Biology/Genetics/Molecular Biology, it is your responsibility to revisit it if you need.

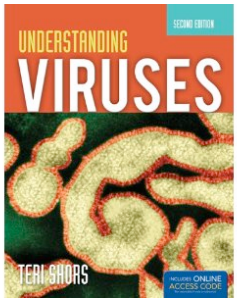
Differences between undergraduate and graduate requirement for co-listed courses:

A group of about three BIOL4259 students will present a 20-minute (plus 5 min for questions) PPT presentation a "hot" virus (virus will be selected by Dr. Grdzelishvili).

Each BIOL5259 student will write a short review on an assigned virological topic (topics will be selected by Dr. Grdzelishvili).

Course materials:

1. **Textbook** - **2nd edition (available at UNCC Bookstore) or 1st edition (elsewhere)**



"Understanding Viruses" (2nd edition, 2011) by Teri Shors,
Published by Jones and Bartlett Publishers
ISBN-10: *1449648924*
ISBN-13: *978-1449648923*

Course content:

Date	*Topic*	*Chapter/Pages*
Jan 15	1. Introduction to Virology: definition, properties and origin of viruses 2. Revisiting molecular/cell biology basics	**Ch. 1 (p. 1-31)** **Ch. 2 (p. 32-45)**
Jan 22	3. Virus architecture and nomenclature 4. Virus replication cycle	**Ch. 3 (p. 46-66)** **Ch. 4 (p. 67-94)**
Jan 29	5. Basic virological methods 6. Basics of virus entry, spread and transmission Student 1+2+3 Presentation "Ebola virus"	**Ch. 5 (p. 95-129)** **Ch. 6 (p. 130-163)**
Feb 5	**Test 1 (1 hour)** 7. Host resistance to viral infection: immune responses	**Ch. 7 (p. 164-189)**
Feb 12	8. Vaccines and antiviral chemotherapy: the prevention and treatment of viral diseases 9. Viral epidemiology Student 4+5+6 Presentation "Human respiratory syncytial virus"	**Ch. 7 (p. 190-211)** **Ch. 8 (p. 212-243)**
Feb 19	10. Exploiting viruses as gene therapy and vaccine vectors 11. Viruses and cancer: oncoviruses and oncolytic viruses Student 7+8+9 Presentation "T-VEC (Talimogene laherparepvec) – first approved oncolytic virus based on herpes simplex virus"	**Ch. 9 (p. 244-266)** **Ch. 10 (p. 267-317)**
Feb 26	**Test 2 (1 hour)** 12. Polioviruses and other single-stranded positive-strand RNA viruses Student 10+11+12 Presentation "Middle East respiratory syndrome coronavirus (MERS-CoV)"	**Ch. 11 (p. 318-344)**
March 4	13. Rabies and other single-stranded nonsegmented negative-strand RNA viruses Student 13+14+15 Presentation "Nipah and Hendra viruses"	**Ch. 13 (p. 398-422)**
March 11	**Spring Break – NO CLASS**	
March 18	14. Influenza virus and other single-stranded segmented negative-strand RNA viruses 15. Evolution of viruses: new and reemerging viruses Student 16+17+18 Presentation "Highly pathogenic avian influenza"	**Ch. 12 (p. 345-397)** **Ch. 18 (p. 556-586)**
March 25	16. Herpesviruses (nuclear large double-stranded DNA viruses) Student 19+20+21 Presentation "Varicella-zoster virus"	**Ch. 15 (p. 455-483)**
April 1	**Test 3 (1 hour)** 17. Poxviruses (cytoplasmic large double-stranded DNA viruses) Student 22+23+24 Presentation "Monkeypox virus"	**Ch. 14 (p. 423-454)**
April 8	**Study Lecture on Moodle – NO CLASS, but the following Moodle assignment - 18. Small DNA viruses**	
April 15	19. HIV and other retroviruses Student 25+26+27 Presentation "Human T-lymphotropic virus"	**Ch. 16 (p. 484-523)**
April 22	20. Hepatitis B virus (reverse-transcribing DNA virus) and other viruses causing hepatitis 21. Prions and other virus-like agents Student 28+29+30 Presentation "Hepatitis D (delta) virus"	**Ch. 17 (p. 524-555)** **Ch 19 (p. 587-613)**
April 29	**Test 4 (1 hour)** Student 31+32+33 Presentation "Creutzfeldt–Jakob disease" FINAL REVIEW OF ALL TOPICS	
May 6	**FINAL EXAM [8-10:30 AM]**	

Grading policy:

The following will be used to determine your grade (A=**92**-100%, B=**82-91**%...)

BIOL4259

4 mid-terms tests	**= 17.5% of final grade each (70% total contribution)**
Group Presentation	**= 10% of final grade each**
Final Exam	**= 20% of final grade**

BIOL5259

4 mid-terms tests	**= 17.5% of final grade each (70% total contribution)**
Written paper	**= 10% of final grade**
Final Exam	**= 20% of final grade**

If you missed your test or final exam, you will lose 10 points (per test/exam) from your final grade and your other tests/exam will have higher contributions.

Please note that any course averages that Moodle tries to calculate for you will not be accurate because the system cannot manage a complex grading formula. To calculate your class average, you should always consult grading policy for the class and compute your averages using those formulas.

Class attendance and other policies:

1. **Attendance (with less than 15 min absence from each class) is expected and will be monitored!** If you attended every single lecture – including Lecture #1 - **(with less than 15 min absence from each class)**, you will get extra 2 bonus points to your final grade. If you attended all lectures **(with less than 15 min absence from each class)** but one, you will get extra 1 bonus point to your final grade. **But, you cannot get these bonus points if you missed the required number of lectures *regardless of your excuse*.**
2. **Your tests will include material presented by students (student presentations will be posted on Moodle)**
3. **You should give your presentation on time! Make-up presentations will be permitted ONLY for serious illness and mandatory UNC Charlotte policies. A physician's note will be required for illness. If you missed your presentation without a physician's note, you will lose 10 points from your final grade.**
4. **Each presentation must last 20 minutes +/- 2 minute (plus 5 minutes for questions).**
5. **You should be able to answer all reasonable answers coming from the instructor or students.**
6. If I am late in arriving to class, you must wait a full 20 minutes after the start of class.
7. I may modify the standards, requirements and dates set forth in this syllabus at any time. Notice of such changes will be by announcement in class, or by written or email notice.
8. The use of cell phones, beepers, or other communication devices is disruptive, and is therefore prohibited during class.
9. No walking in/out during the class (unless an emergency).
10. **Students are permitted to use computers during class for note-taking and other class-related work only. Those using computers during class for work not related to that class must leave the classroom.**

11. Please, use only official UNCC e-mail address for all our communications.
12. It is your responsibility to check your e-mail periodically in case there are some changes

General UNCC policies:

Code of Student Academic Integrity: *Students have the responsibility to know and observe the requirements of the UNC Charlotte Code of Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submission of work, plagiarism, abuse of academic materials, and complicity in academic dishonesty.* http://legal.uncc.edu/policies/up-407

Disability Resource: *If you have a disability that qualifies you for academic accommodations, please provide a letter of accommodation from Disability Services in the beginning of the semester. For more information regarding accommodations, please contact the Office of Disability Services at 704-687-4355 or stop by their office in Fretwell 230* *http://ds.uncc.edu/sitemap*

UNC Charlotte Sexual Harassment Policy: *All students are required to abide by the (http://www.legal.uncc.edu/policies/ps-61.html) and the policy on Responsible Use of University Computing and Electronic Communication Resources (http://www.legal.uncc.edu/policies/ps-66.html). Sexual harassment, as defined in the UNC Charlotte Sexual Harassment Policy, is prohibited, even when carried out through computers or other electronic communications systems, including course-based chat rooms or message boards.*

Religious accommodations: *Students will be provided reasonable accommodations for religious obligations in accordance with University Policy #409: Religious Accommodation for Students (http://legal.uncc.edu/policies/up-409). This policy (1) authorizes a minimum of two excused absences each academic year for religious observances as required by the faith of a student; and (2) provides students the opportunity to make up any missed work. Students are asked to submit their request for religious accommodation to faculty prior to the census date of each semester.*

UNC Charlotte strives to create an academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity, which includes, but is not limited to, disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Syllabus changes. *The standards and requirements set forth in this syllabus may be modified at any time by the course f such changes will be made by announcement in class, or by written or email notice, or by changes to this syllabus posted on the course website*