

Syllabus: Virology MB 434/534 (3 credits) Spring 2017
Nash 206 MWF Noon - 12:50 PM

Prof. Theo Dreher, ALS 1065

Office hours immediately after lectures or by appointment

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Text: Molecular Virology of Human Pathogenic Viruses. W-S Ryu, 2017

| Date | Lecture Topic | Ryu Reading |
|-------------|---|--------------------|
| Apr 3 M | Introduction, Virus classification & structure | Ch. 1, 2 |
| 5 W | Virus life cycle | Ch. 3 |
| 7 F | Virus diagnosis and methods | Ch. 4 |
| 10 M | Non-adaptive viral defenses | Ch. 5 |
| 12 W | Adaptive immunity | Ch. 5 |
| 14 F | DNA viruses: Polyomaviruses and Papillomaviruses | Ch. 6, 7 |
| 17 M | Baculoviruses: Dr. George Rohrmann guest lecturer | Ch. 7 |
| 19 W | Adenoviruses/Parvoviruses | Ch. 8, 10 |
| 21 F | Herpesviruses I | Ch. 9 |
| 24 M | Herpesviruses II | Ch. 9 |
| 26 W | Poxviruses | Ch. 10 |
| 28 F | (+) RNA viruses: Picornaviruses | Ch. 11 |
| May 1 M | Midterm I 100 points (<i>Covers material through Poxviruses</i>) | |
| 3 W | Toga/Flaviviruses | Ch. 12 |
| 5 F | Other (+) RNA viruses; emerging viral diseases | Ch. 13, 21 |
| 8 M | (-) RNA viruses: Rhabdo/Paramyxoviruses | Ch. 14, 16 |
| 10 W | Influenza viruses I | Ch. 15 |
| 12 F | Influenza viruses II | Ch. 15 |
| 15 M | Other negative strand RNA viruses | Ch. 16 |
| 17 W | ds RNA viruses: Reo/Rotaviruses | Ch. 16 |
| 19 F | Midterm II 100 points (<i>Covers material through negative strand viruses</i>) | |
| 22 M | Retroviruses I | Ch. 17 |
| 24 W | Retroviruses II & AIDS | Ch. 17, 22 |
| 26 F | Hepadnaviruses & Hepatitis | Ch. 18, 23 |
| 29 M | <i>Memorial Day Holiday</i> | |
| 31 W | Tumor Viruses | Ch. 24 |
| June 2 F | Plant viruses | |
| 5 M | Subviral entities and phages | Ch. 20 |
| 7 W | Phages (cont.) & Prions | Ch. 20 |
| 9 F | Vaccines & antiviral therapy | Ch. 25, 26 |

Tuesday June 13, 9:30 am, Final Exam 100 points Nash 206
(covers from dsRNA viruses to end of term)

Course policies: Lecture material will be posted on *Canvas* as the course proceeds. These will correspond to most, but maybe not all, slides used during lectures; spoken lecture material will frequently present more explanation and detail. Exam material will draw upon lecture content and assigned reading; there will be two mid-term and final exams. Practice tests will be made available before each exam as an example of the test style and level of difficulty. Questions are welcome during and outside class time. Office hours will be 2-3 pm on days after lectures or by appointment. *Canvas* will be used for posting course material such as announcements, additional reading, practice tests, exam results and answer keys.

MB 434 grades will be based on the 3 exams, out of a total point score of 300; the class will be graded on a curve.

Grading scale:

A 93-100%; A- 90-92%; B+ 87-89%; B 83-86%; B- 80-82%; C+ 76-79%; C 70-75%;
C- 65-69%; D+ 60-64%; D 55-59%; D- 50-54%; F Less than 50%

MB 534 grades will be based on the same exams plus discussion and report contributions involving analysis of advanced topics covered in additional class meetings (times to be arranged). Graduate students will be responsible for presenting and discussing two research papers. Each student will choose two virology papers (no review articles) from the last 2 years, choosing papers of significance to your research or that are generally important from the point of view of the techniques used or results found; avoid very long papers. Submit your choices to Dr. Dreher (send the link or pdf) as a check for suitability. Virology work is published in many journals, the best virus-specific ones being *Journal of Virology* and *Virology*, and also in *PNAS*, *Science*, *Nature*, *Cell*, *PLOS Pathogens*, and others. Students will present a 30-40 minute discussion and critique of the paper using slides; avoid lengthy introductions of the virus at hand; focus on the paper's goals, methodology and conclusions, covering the results step-by-step (figures and tables). Be critical if that's warranted. On the day of each presentation also submit a 2 page written report going over the paper in a similar way. A-B-C-D-F grades will be assigned to the talks and papers, with those scores being combined to be equivalent to a 4th exam (100 points). Discussion participation is expected of all students for all papers.

Note the prerequisites and contact Dr. Dreher if you lack standard prerequisites but have other experience that makes you confident you are prepared to take the course.

Learner Outcomes:

At the completion of the course, you should:

1. be conversant with specialized language relevant to virology;
2. understand the basic design, infection and replication strategy of viruses, and the diseases they cause;
3. be able to communicate and explain in writing key aspects of virology;
4. be aware of currently exciting topics and issues in the field of virology.

Learner Expectations (advice for doing well in this course):

Intelligently and politely utilize the learning opportunities provided by lectures:

1. Attend all classes; do not arrive late or leave early
2. Prepare for the next lecture by reading or at least scanning handouts and assigned reading *before* class
3. Bring handouts to class and make notes on them during the lecture; you may record the lecture on a sound tape if you wish
4. Read over lecture notes and assigned reading in detail after class and *before* the next class; make notes on anything that is unclear or that you are curious about and seek an answer from the lecturer, a classmate or the text
5. Keep up in your understanding and reading; if you fall behind you will not be able to follow lecture material and will rapidly fall still further behind. Do not hesitate to consult lecturers to help you keep up and catch up.
6. You should allocate at least 2 hours of study for each hour lecture throughout the course; don't be tempted to rely on cramming.

University and Departmental Policies:

For students with documented disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Please note: The Department of Microbiology follows the university rules on civility and honesty. These can be found at <http://oregonstate.edu/instruct/cssa556/CIVHON556.htm>. Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action. Cheating or plagiarism by students is subject to the disciplinary process outline in the Student Conduct Regulations.

At Oregon State University academic dishonesty is defined by the Oregon Administrative Rules 576-015-0020.1.a-c as: a) "Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another."

(i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or

using any deceptive means to gain academic credit.

(ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

(iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

(iv) TAMPERING - altering or interfering with evaluation instruments or documents.

(v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

"Academic dishonesty cases are handled initially by the academic units (collection of evidence and documentation of incident, meeting with student regarding the situation, determination of responsibility and academic penalty) but will also be referred to the Student Conduct Coordinator for action under the rules."

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

"The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office."