Syllabus: Concepts of Infectious diseases (BIOL 462 and BIOL 662)

1 Instructor contact information
Karsten Hueffer  
Arctic Health Research Building #2W02  
Tel: 474 6313  
Email: khueffer@alaska.edu

Office hours: flexible office hours by appointment  
E-mail is the best way to contact me.

2 Meeting time and place
Tuesdays and Thursdays 11:30 am to 1 pm  
208 Irving1

3 Course Description
This course will cover infectious disease biology using examples of diverse pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and social impacts of infectious diseases.  
We will cover viral and bacterial pathogens. Because of this broad spectrum of topics the course will not give an in depth, detailed knowledge about each pathogen group. We will rather cover the general principles that will enable you to better understand the biological principles governing the interaction between pathogens and their hosts and thereby the impact of infectious agents on human health, food production and wildlife.  
The course will put emphasis on understanding and applying the concepts that are covered, rather then on memorization of facts. This understanding will allow the student to explore the biology and implications of pathogens in independent studies. The course format will therefore be highly interactive with the expectation that the students participate in the lectures and independently explore certain concepts discussed in class.

Approximate schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1.</td>
<td>Introduction and overview over course and historic perspective</td>
<td>10.</td>
<td>Cell tropism of viruses and viral emergence</td>
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<td>2.</td>
<td>Introduction into general Virology</td>
<td>11.</td>
<td>Viral latency and Viruses and tumors</td>
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<td>3.</td>
<td>Introduction into general Bacteriology</td>
<td>12.</td>
<td>Strategies of intracellular bacteria and Bacterial toxins</td>
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<td>4.</td>
<td>Introduction into Immunology</td>
<td>13.</td>
<td>Antibiotic resistance and biofilms</td>
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<td>5.</td>
<td>Coevolution of host pathogens and Immunevasion</td>
<td>14.</td>
<td>Student presentations</td>
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<td>6.</td>
<td>Opportunistic infections</td>
<td>15.</td>
<td>Student presentations and scenario</td>
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<td>7.</td>
<td>Vaccination</td>
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<td>Final exam: 5:45 - 7:45 p.m., Wednesday, May 11</td>
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<td>8.</td>
<td>Replication efficiency</td>
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<td>Examples of ID eradication</td>
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<td>9.</td>
<td>Viral genetics</td>
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5 Course readings/materials
No textbook is required for this course. Reading material will be provided in class. Research and review papers concerning topics covered in class will be posted regularly and are required reading. But there are a couple of useful books on specific pathogen groups or of general interest to the topic of infectious disease that will be presented during the course and will only serve as additional and optional self motivated reading.

6 Course goals
Students will learn examples of basic concepts of current infectious disease research. Knowledge of these concepts will enable the students to better understand the impact of pathogen biology on epidemiology and pathology of infectious disease.

7 Instructional methods
Students will learn through lecture, reading, and group discussion and independent study.

8 Course policies
You are expected participate in discussion. You are also expected to arrive at lecture on time.

9 Requirements
All students will be required to do weekly reading assignments. Each week two students will be assigned to present on the assigned paper and the paper will then be discussed in class. Each student will be assigned two such paper presentations during the semester. The presentations will be followed by a discussion of the papers by the whole class. All students are required to read the papers ahead of class. These presentations make up the class participation grade. The students will receive feedback on presentation style from the instructor throughout the semester. In addition to these two presentations of about 5 minutes, students are expected to work on a self-motivated project. For undergraduates this will result in a presentation of at least 15 minutes at the end of the semester. Graduate students will give a 20 minute presentation and hand in a short (5-7 page) review on the chosen topic. The topic of this presentation will be decided by the student in consultation with the instructor.

10 Evaluation/Grading
I will use plus minus grades in the class.

100%-97%  A+
93%-96%  A
89%-92%  A-
85%-88%  B+
81%-84%  B
77%-80%  B-
73%-76%  C+
69%-72%  C
65%-68%  C-
61%-64%  D+
57%-60%  D
53%-56%  D-
<53 F

Student performance will be evaluated with the following factors

presentation 25%
oral exam 20%
Self motivated project 10%
final written exam 45%

Total 100%

A total of 15 percentage points out of 35% for the final presentation and paper presentations will be based on oral presentation skills. Differences in grading for 462 and 662 level course will reflect the needs of both graduate and undergraduate students. Grading for graduate students will heavily focus on synthesis of knowledge and independent understanding of concepts discussed in the class. Undergraduate grading will weigh knowledge based questions more heavily, thereby reflecting the differences between these groups and ensuring a positive and challenging learning experience for both graduate and undergraduate students in the class.

11 Support Services
If you require more assistance than can be provided in class, and office hours, you may want to contact Student Support Services (http://www.uaf.edu/sssp/).

12 Disability Services
If you have a disability, or think you may have a disability, please contact the Office of Disabilities Services (203 WHIT, 474-7043). We will work with this office to provide reasonable and appropriate accommodation to students with disabilities.