DVM 639 / Biol 639 VETERINARY VIROLOGY

SYLLABUS – SPRING

Department of Veterinary Medicine, University of Alaska Fairbanks

1. Course Information:
   Title: Veterinary Virology
   Number: DVM 639
   Credit: 2
   Prerequisites: Successful completion of first semester of veterinary courses (DVM 639) or permission of instructor
   Location: Irving 141
   Meeting time: Once a week for two lectures

2. Instructor Contact Information:
   Name: Dr. Karsten Hueffer
   Office Location: 2W02 Arctic Health Research Building
   Office Hours: By appointment
   Office Phone: 907-474-6313
   Email: khueffer@alaska.edu

   Email is the best way to reach the instructor. You should receive a response to your email within 24 hours when it is received. If you do not receive a reply within this time frame, assume that the email was not received and please resend your message.

3. Course Reading/Materials:
   Textbook Title: Veterinary Microbiology and Microbial Disease
   Editors: P. J. Quinn, B. K. Markey, F. C. Leonard, P. Hartigan, S. Fanning, E. S. FitzPatrick
   Edition: 2th Edition
   Publisher: Wiley Blackwell Scientific Ltd.
   ISBN: 978-1-4051-5823-7

   Or

   Textbook Title: Fenner's Veterinary Virology
   Editors: N. James Maclachlan and Edward J. Dubovi
   Publisher: Academic Press
   ISBN: 978-0-12-375158-4

4. Course Description:
   The course will include an introduction to veterinary virology in which the basics of viral structure, differences between virus families and their replication cycles will be discussed. A general explanation of viral mediated damage at the cellular level and the basic principles of viral entry, spread in the host and pathogenesis will be presented. Host response to viral infection, innate and acquired immunity, and the role of viral vaccines in disease prevention will be explained. Each viral family and major viral diseases will be discussed.
5. Course Goals:
To present the basics of veterinary virology and the characteristics of each virus family; how different viruses interact with their respective hosts at molecular, cellular, organismal and population levels in causing disease; clinical diseases and pathologic lesions associated with major viral diseases with emphasis on practical considerations related to accurate diagnosis, prevention and management of viral diseases.
- Basic principles of viral taxonomy, structure and replication
- Host-viral interactions that result in disease, viral persistence, and/or recovery

For each virus family, the major viral diseases will be discussed including
- Host range, reservoir and incidental hosts
- Common and scientific names of diseases
- Clinical presentations of disease, pathogenesis
- Transmission of virus, virus shedding, factors affecting spread
- Prevention and control

6. Student Learning Outcomes:

Overall Learning Goals:
Understanding of:
- General virus structure, genome, and life cycle
- Fundamental differences between each virus families
  - By genome composition
  - By capsid structure
  - By genome structure
  - By pathogenesis strategy
- Host-Virus interactions
- Methods and techniques used in virus diagnosis and reference

Overall Learning Outcomes:
Upon completion of the course the student will be able to:
- Describe general animal virus life cycle
- Predict replication strategy of animal viruses based on genome composition
- Apply concepts of animal virus structure to replication cycle
- Evaluate different control measures of animal viral diseases
- Compare possibilities and limits of methods and techniques used in veterinary virology diagnosis and reference
- Remember each animal virus family and its representative members
- Apply veterinary virology concepts to viral infectious disease control, prevention, and treatment

7. Instructional Methods:
This course is lecture based.
This course will use Blackboard (classes.uaf.edu) to make additional information available. All information associated with this course will be posted there, including lecture notes, slides, handouts, or study guides etc. Student version of lectures will be posted before each lecture. Students are expected to download, print and preview the material before each lecture. Students can also check their grades and make sure that information related to your record is accurate.

8. Course Calendar:
For details, refer to the section “Tentative Lecture Schedule” in the end of this syllabus.

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9. Course Policies:
   - Attendance:
     Students are expected to attend all classes. Exams will draw on lecture material and students that do not attend class will likely not to do well in exams.

   - Classroom Behavior:
     Any type of behavior in the classroom that is disruptive, distracting, or disrespectful to the instructor or to your fellow students will not be tolerated and will result in dismissal from the classroom. This includes, but is not limited to, disrespectful comments, and the use of tobacco products. All cell phones or other such devices must silenced while in the classroom. Do not browse the Internet, text message or IM while in the classroom. You can use such devices for note taking or other class related activities.

   - Plagiarism:
     Plagiarism is the overt or covert use of other people's work or ideas without acknowledgement of the source. This includes using ideas or data from a classmate or colleague without permission and acknowledgement, including sentences from journal articles in your writing without citing the author, or copying parts of a website into your essay. Plagiarism and cheating are serious offenses that violate the student code of conduct which may result in an “F” in the course and/or referral to the university disciplinary committee.

10. Evaluation:
   - Grade Distributions:
     Midterm Exams 100 points (2 x 100)
     Final Exam 200 points
     Total points 400

     There will be two midterm exams and a written final exam in addition. Grades will be posted on Blackboard you should always confirm that your grade is posted correctly. Only bring the materials needed for your exam on exam dates. Cell phones must be stored out of sight and turned off. If you are found cheating, you will receive a zero for the exam and will be reported to university disciplinary committee.

   - No Make-Up Exams:
     All exams must be taken at the scheduled time. Exams cannot be taken before or after the scheduled date/time. If you miss an exam, you will receive a zero as your grade.
     **Note:** If you have a conflict due to a university-sponsored event, you must notify me prior to the exam with a confirmation letter from University authority. If you miss an exam for medical reasons you need to inform the instructor as soon as possible and provide a statement from a licensed physician.

   - Grading Scale:
     Grades will be calculated on 100-point scale
     | Grade | Range | Percentage |
     |-------|-------|------------|
     | A+    | 97-100| %          |
     | A     | 93-96.9| %         |
     | A-    | 90-92.9| %         |
     | B+    | 87-89.9| %         |
     | B     | 83-86.9| %         |
     | B-    | 80-82.9| %         |
     | C+    | 77-79.9| %         |
C  73-76.9  %  
C-  70-72.9  %  
D  60-69.9  %  
F  <60  %  

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:  
All students, including those with disabilities, are welcome in this course, and we are committed to providing equal access to this course for all students. If you have a disability (including learning disabilities) please inform us during the first week of class so that we can accommodate your specific needs. If you have not already done so, you will also need to contact UAF's Office of Disabilities Services (474-5655). Everyone should have the opportunity to participate fully in the course and to complete assignments and exams to the best of their ability. If accommodations are needed to enable you to do so, we will gladly work with you to provide them.

Tentative Lecture Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Intro/Structure, Replication/Virus-cell interaction</td>
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<td>2</td>
<td>Viral Pathogenesis Viral Immunology</td>
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<td>3</td>
<td>Diagnostic Tests/Considerations Vaccines and Antivirals</td>
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<td>4</td>
<td>Exam - DNA VIRUSES--Poxviridae &amp; Asfaviridae</td>
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<td>5</td>
<td>Herpesviridae Adenoviridae</td>
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<td>6</td>
<td>Paroviridae &amp; Circoviridae Papilloma/Polyomaviridae</td>
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<td>7</td>
<td>RNA VIRUSES--Retroviridae</td>
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<tr>
<td>8</td>
<td>Reoviridae/Birnaviridae RNA NEGATIVE-SENSE Rhabdoviridae</td>
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<td>9</td>
<td>Filoviridae/Borna Orthomyxoviridae</td>
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<tr>
<td>10</td>
<td>Exam - Paramyxoviridae</td>
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<td>11</td>
<td>Bunya/Arena RNA POSITIVE SENSE--Picornaviridae</td>
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<td>12</td>
<td>Caliciviridae Togaviridae</td>
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<td>13</td>
<td>Flaviviridae Coronaviridae</td>
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<td>14</td>
<td>Arteriviridae Prions</td>
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<tr>
<td>15</td>
<td>Virology by system/species recap</td>
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<tr>
<td>16</td>
<td>FINAL EXAM</td>
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