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BIOM 227.01: Vectors and Parasites

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Recommended Citation

Driver, James D., "BIOM 227.01: Vectors and Parasites" (2019). *University of Montana Course Syllabi*. 9344.

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BIOM 227 Vectors and Parasites Spring Semester 2019
The Biology and Epidemiology of Vector-borne and Parasitic Diseases

Instructor Dr. Jim Driver. Office ISB 017 Electron Microscopy Laboratory,
Phone – 243-4669, email – jim.driver@mso.umt.edu
Classroom HS 207. Lecture times - Tu Th 2:00 pm – 3:20 pm
Office Hour – Wednesdays 12:00 pm – 1:00 pm or by appointment

Textbooks used for this class: H.F.L. Wertheim, P. Horby and J.P. Woodall. 2012. Atlas of Human Infectious Diseases, Wiley-Blackwell Publishing.

C.B. Marcondes, Editor. 2017. Arthropod Borne Diseases. Springer International Publishing
Textbook: Foundations of Parasitology, Schmidt and Roberts. 9th Ed.

There is no required textbook for this class. Materials for this class from these textbooks and other sources will be posted on Moodle.

UMOnline – Moodle: Lectures will be posted in units containing materials to be covered for each upcoming exam. I reserve the right to alter the amount of material that will be covered for each exam. Lectures posted on Moodle will be in Powerpoint format. In class I will explain the topics covered and add additional material not necessarily in the Powerpoint in order to better explain the topic. Exam questions will come from the topics outlined in the Powerpoint slides and on additional material on those topics found in the textbook chapters posted on Moodle. Other materials including research papers and materials found on web sites (The CDC for example) may also be used for exam questions. This class will include class discussions on topics of importance to global health and vector and disease control. I STRONGLY encourage you to attend the class and to participate in the class discussions. Class attendance has also been shown to be a critical factor in a student's final grade.

Course description

The goal of this class is to give you an overview of Arthropod vectors of disease and the arthropod-borne pathogens/parasites that infect humans throughout the world. After taking this class you should have an understanding of the general morphology and feeding methods and habits of the arthropod vectors that transmit a variety of pathogens to humans. This will also include past, present, and future vector control methods. You will also have an understanding of vector-borne pathogens including viruses, bacteria, and protozoal and helminthic parasites. Topics covered will be the biology and life cycle, transmission, pathology, treatment, epidemiology, and control methods for these organisms.

Learning Outcomes

The purpose of this class is to give you an overview of the major groups of parasites and arthropod-borne pathogens that infect humans throughout the world. Students will have an understanding of the morphology and physiology of arthropod vectors of disease; how they are able to amplify and transmit pathogens to human and animal hosts. Additionally, students will gain a detailed understanding of the diseases transmitted and their pathology in the human host. Finally students will learn and engage with the class on topics of epidemiology and control for the arthropod vectors of these important human diseases.

Lecture exams: There will be 4 lecture exams; three exams during the semester and a 1/2 comprehensive final. There will also be one short writing assignment as described below.

Exam Schedule:

Exam 1 Tuesday February 12th.

Exam 2 Tuesday March 5th.

Exam 3 Tuesday April 9th.

Final Exam April 29th, 1:10 – 3:10PM

Written assignment:

Topic due by Friday March 15th. Send to Dr. Driver at jim.driver@mso.umt.edu.

Paper due by 5pm Monday April 8th.

Each student will choose a topic on an arthropod vector or vector-borne parasite of importance to global health for a 1 page single-spaced paper. This paper is to be directed to a public audience of non-scientists. You will attempt to illustrate your topic in a way that will help the audience understand the science behind the topic. As microbiologists or health professionals you must be able to clearly explain an arthropod-borne disease and its transmission, pathology, and treatments to a public that might not understand these topics or may have been misled by other information outlets (see - The Internet). The paper will be graded on clarity of writing, suitability for the target audience, scientific validity, and quality of the writing (grammar, spelling, clarity of description, etc.). Please cite a minimum of 2 references at the end of the one page paper. Since the internet is a common resource for all types of research (or pseudo-research) make sure to back up your information with reputable research papers and a trip to the CDC or WHO web sites.

Paper may be emailed to jim.driver@mso.umt.edu or if necessary handed in after class or placed in my mailbox in HS 104. Late papers will be penalized 10% for every day late.

Grading

Grades for this course will be based on 3 semester exams (100 points each) and a final exam (200 points, 1/3 comprehensive), and a short writing assignment (100 points).

The following grading scheme will be used:

100-90% = A, 89.9-80% = B, 79.9-70% = C, 69.9-60% = D, <60% = F

If you are taking this class as Pass/No Pass the University requirement for a Passing grade is the equivalent of a “C” (70%) or higher cumulative average on exams and assignments.

Classroom attendance, make-up exams.

Please attend class on a regular basis. Disruptive behavior such as talking or disturbing other students by leaving lecture early is not acceptable. If you expect to leave class early, please tell me before class begins. **Make-up exams will be permitted only with compelling and supported reasons.** Make-up exams will be scheduled at the convenience of the instructor.

Instructor’s policy for accommodating disabilities

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Instructor’s policy on academic honesty and plagiarism.

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.