

Biol 3500: Plagues, Pests and People
Spring Semester 2020

Instructor

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VSB 114
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Office Hours: Tues/Thurs 1:30 – 2:30pm
Please email or stop by to schedule a visit at another time

Schedule

3 credit hours – Tuesday, Thursday 3:00pm – 4:15pm
LSB 214

Required Textbook:

The Microbial Challenge, 4th Edition. Kasner R.I. and T. Shors. 2020

Additional useful text (I will also try to have pdf's available for you)

Medical and Veterinary Entomology by Mullen and Durden, 3rd Edition.

Course Objectives:

In this course, students will gain an understanding of the biology and diversity of medically important infectious diseases of historical and present day significance. Many of these plagues and current disease outbreaks are transmitted by insect pests. Following an introduction emphasizing basic principles in biology, nomenclature, and concepts in medical and veterinary entomology, we will examine the significance of medically important diseases and how insects contribute to these outbreaks. We will discuss the economic and social impact of these diseases from both a historical and modern perspective, as well as strategies for their prevention and control. In addition, we will discuss in detail other important disease transmission routes (e.g. respiratory, contact, blood, food/water, sexual) and relevant bacterial, viral, protozoan, fungal, and helminth pathogen outbreaks that are important to humans today. We will discuss proposed and effective prevention and control methods, vaccination choice, antibiotic/insecticide resistance evolution and how these challenges affect individuals, national public health initiatives, and international health.

Syllabus:

The syllabus is fluid. It may change due to unforeseen circumstances. Please make sure to be attentive to any necessary changes. READ your BOOKS and REVIEW your NOTES.

Attendance, honesty, and attention:

Attendance is mandatory. Be on time and be prepared. I have assigned plenty of reading. I will also show some videos during class time and will refer to them on tests. If you are sick, I will need a statement from your doctor. In the case of a death of friend or family or any other emergency, make sure to contact me as soon as you can.

Cheating will not be tolerated. Anyone caught cheating will automatically receive 0 on the test/assignment and will be treated according to the University Policy on Cheating.

Cell phones should be turned OFF (not just to vibrate) during class.

Grading

Your final grade for the course will be determined by combining the points you receive for each of five major components. The final grade for the course will be determined as follows:

- 20% - Exam #1
- 20% - Exam #2
- 20% - Exam #3
- 20% - Research Paper
- 20% - Cumulative final exam

Approximate grading scale:	A: $\geq 93\%$	A-: $\geq 90\%$
	B+: $\geq 87\%$	B: $\geq 83\%$
	B-: $\geq 80\%$	C+: $\geq 77\%$
	C: $\geq 73\%$	C-: $\geq 70\%$
	D+: $\geq 67\%$	D: $\geq 60\%$
	Greater than 60% is required to pass	

Exams:

Question material for exams and the final exam will come from the textbooks, course notes, student presentations, and lecture discussions.

Each exam will consist of 20% of your final grade. Please pay close attention to the course outline when studying for the exams. Each exam will be divided into 3 parts: 1. True/False, 2. Multiple Choice, and 3. Short Answer. Each of these exams will be issued through the USU Testing Center. You will have approximately 2 days to take each exam. Please schedule your test times as soon as possible. Students will have 75 minutes to complete the entire exam.

Exam #1 – 02/05-02/06/2020

Exam #2 – 03/13-03/16/2020

Exam #3 – 04/10-04/13/2020

The **final exam** is scheduled to be available through the USU Testing Center on 04/27-04/29/2020. You will have 1 hour and 50 minutes to complete the exam. The exam will consist of 20% of your final grade. The final exam format will be exactly like the previous exams. This final will be a comprehensive exam, including new material from the guest lecturer, and the laboratory tour. This exam will also be issued online as the previous exams.

Student Research Paper:

You will be required to write a research papers where you will address a specific medical or veterinary disease or the disease of a country that interests you. The research paper can have a historic perspective as well. Choose a topic (maybe you know someone afflicted with this disease, you had this disease, or you traveled to a country and observed a disease), and go into deeper detail if the disease was already covered in class. Some things to think about: what is the disease agent, what is the disease transmission route, what are the pathological effects of the disease on people or animals, what is the history of the disease, how is it prevented, controlled, and treated, and recent challenges associated with prevention and control. The Student Research Paper is Due On: **04/02/2020**.

Grading: A small portion of your grade will be attributed to you going to the science writing center to receive guidance/critique upon completion of your preliminary draft.

Science Writing Center Exercise: You are required to make an appointment to have your preliminary draft reviewed in the Science Writing Center prior to submission. The SWC is located at ESLC 044B. You can schedule an appointment at <https://www.usu.edu/science/swc/index>. This paper review in the SWC will contribute 10% to your overall discussion paper grade.

Explicit Instructions: 12 font Times New Roman, 1” margins, at least 3 pages single spaced, not including references. Use referred journals, textbooks, etc., and websites as references cited. Try to use as few websites as possible, but definitely use, for example, the CDC’s webpage for pathogen lifecycles. **At least 10 references are required.** Deviations from the above format will result in a lower grade. Review the grading rubric to make sure you are including all the necessary components.

Accommodation for Disabilities:

Students with physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.

2020 Plagues, Pests, and People Course Schedule

Day	Date	Lecture Topic	Readings in The Microbial Challenge
T	7-Jan	Introduction to plagues, pests, and people	(1) Course notes
TH	9-Jan	History of microbiology and the challenge	(2) Chap. 04
T	14-Jan	Microbe Types	(3) Chap. 05 & Chap. 06
TH	16-Jan	Concepts of Microbial Disease	(4) Chap. 10
T	21-Jan	Epidemiology	(5) Chap. 11
TH	23-Jan	Epidemiology	(5) Chap. 11
T	28-Jan	Arthropods, entomology, hematophagy	(6) Course notes
TH	30-Jan	Arthropod pests (roaches, beetles, butterflies, bed bugs)	(7) Course notes
T	4-Feb	Mosquito-borne diseases & Exam Review	(8) Chap. 12 & 13
W/TH	02/05-02/06	Exam #1 - USU Testing Center (No class) No Mosquito-borne disease lecture on exam	
T	11-Feb	Mosquito-borne diseases (Professor Gone - Recorded Lecture)	(8) Chap. 12 & 13
TH	13-Feb	Tick-borne diseases (Professor Gone - Recorded Lecture)	(9) Chap. 12 & 13
T	18-Feb	Sand fly diseases	(10) Chap. 12 & 13
TH	20-Feb	Flea-borne diseases	(11) Chap. 12
T	25-Feb	Mites, lice, and midge-borne diseases	(12) Course notes
TH	27-Feb	Black flies, testse flies, and true bug diseases	(13) Chap . 14
T	3-Mar	Spring Break	
TH	5-Mar	Spring Break	
T	10-Mar	Other biting fly diseases	(14) Course notes
TH	12-Mar	Finish biting fly diseases and exam review	
F/M	03/13-03/16	Exam #2 - USU Testing Center	
T	17-Mar	Bacterial diseases	(15) Chap. 12
TH	19-Mar	Bacterial diseases continued	(15) Chap. 12
T	24-Mar	Viral diseases	(16) Chap. 13
TH	26-Mar	Viral diseases continued	(16) Chap. 13
T	31-Mar	Sexually transmitted diseases	(17) Chap. 12 & Chap. 13
TH	2-Apr	Protozoan diseases	(17) Chap. 14
TH	2-Apr	Student Research Paper Due via Canvas	
T	7-Apr	Fungal diseases	(18) Chap. 14
TH	9-Apr	Helminths and exam review	(19) Chap. 14
F/M	04/10-04/13	Exam #3 - USU Testing Center (No Helminths lecture on exam)	
T	14-Apr	Helminths continued & begin Prevention and Control	
TH	16-Apr	Prevention and Control - Clean water, food safety, disinfection, sanitation, sterilization	(20) Chap. 3 & Chap. 16
T	21-Apr	Prevention and Control - Antibiotics, vaccination, One Health, vector control	(21) Chap. 16 & Chap. 17
M-W	04/27-04/29	Comprehensive Final Exam: Mon.-Wed. in Testing Center (110 mins)	