Biology 4410 – Medical and Veterinary Entomology- Fall 2014
Lecture M-W-F 10:00-10:50 WSB 107 Lab M 3:00-4:50 WSB 109
Syllabus

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Class Website: http://sulross.blackboard.com & http://faculty.sulross.edu/critzi/

Text: Mullen, G.R. and L.A. Durden. 2009. Medical and Veterinary Entomology. 2nd Edition. Academic Press. Boston, MA.

Course Description: This course will study the major insect, mite, and tick vectors of disease to man and associated animals. Students will learn to identify and understand the life cycles, morphology, and behavior of mosquitoes, ticks, mites, lice, fleas, and other disease vectors. Lectures will emphasize the major arthropod-transmitted disease cycles, such as malaria, Lyme disease, West Nile virus, leishmaniasis, and plague. The interaction between the disease-causing pathogen and the arthropod vector will also be covered, including biological and mechanical transmission of pathogens, as well as the mechanical damage that a parasite inflicts on its host. Laboratory studies will emphasize taxonomy and identification, as well as collection techniques.

Program Learning Outcomes
The graduating biology student graduating with a BS in Biology should be able to:
1) Demonstrate a mastery of aerobic respiration and its significance for living organisms.
2) Be able to identify evolution and the processes that influence it.
3) Be able to identify the components of cell structure and their functions.
4) Compare the fundamental concepts of Mendelian genetics.
5) Compare and contrast the process of photosynthesis to other cellular processes.
6) Be able to identify the processes of molecular biology.

Student Learning Objectives:
1) Students will identify the basic groups of medical and veterinary important arthropods.
2) Students will describe and diagram the life cycles and vector biology of these parasites.
3) Students compare various methods of collecting ectoparasites, and learn the appropriate collecting method for the particular situation they face.
4) Students will assess the impact of medical and veterinary arthropods in terms of disease transmission.
5) Students will study the use and efficacy of forensic entomology.
6) Students will demonstrate a proficiency preservation and mounting techniques for preparing specimens for identification.

Grading: Your grade will be assigned based on the percentage of points you get out of a total possible 800 points. (4-100pt exams, 50 pt Arthropod paper, 5-10 pt quizzes, 100 pts Participation and Attendance, 200 pts lab exams (2-100 pt lab practicals))

Tests: There will be a total of 4 exams, each worth 100 points. Lab practicals will be offered as Midterm and final lab exams, as well, also worth 100 points each. If you miss an exam and have a legitimate excuse, contact me within 24 hours of the test and we will arrange a make-up test. If you do not contact me within 24 hours, you will receive a zero on that exam.

Attendance: Students missing 20% of lectures (9 lectures) OR labs (3 labs) may be dropped from the class per the SRSU catalog. Any student dropped for excessive absences will receive an F for the course grade. Please notify your instructor BEFORE missing class for authorized activities, death in the family, or illness. Exams missed for any reason must be made up within one week of the originally scheduled date. REGARDLESS OF WHY AN ABSENCE OCCURS, YOU MAY BE GIVEN AN F FOR THE COURSE GRADE IF YOU ACCUMULATE SIX ABSENCES.

Lecture courtesy: The general rules of classroom etiquette are below.

1) Please do not talk to others in class while the instructor is lecturing. If you have a question, ASK THE INSTRUCTOR! That's what I'm here for.
2) No eating, chewing, dipping, etc.
3) Please turn cell phones and pagers to silent while in class. They are disruptive to the entire class, and detract from learning.

Students with disabilities will be provided reasonable accommodations. If you would like to request such accommodations because of physical, mental, or learning disability, please contact the ADA Coordinator for Program Accessibility at 837-8203, FH 112.

TENTATIVE LECTURE OUTLINE

DATE	LECTURE TOPIC	CHAPTER
Aug 25	Introduction	1
Aug 27	Classification of Parasitic Arthropods	2 & 3
Aug 29	Hematophagy and Disease Transmission	3
Sept 1	Labor Day – No class	
Sept 3	Epidemiology of Vector-Borne Diseases	3
Sept 5	Epidemiology continued	3
Sept 8	Cockroaches	5
Sept 10	Beetles	8
Sept 12	Beetles continued	8
Sept 15	**Exam I**	
Sept 17	Flies (Diptera)	10
Sept 19	Moth Flies and Sand Flies	11
Sept 22	Biting Midges	12
Sept 24	Mosquito Taxonomy and Biology	14

Sept 26	Mosquito Viruses and Diseases	14
Sept 29	Mosquito monitoring and control	14
Oct 1	Horse Flies and Deer Flies	15
Oct 3	Muscid flies	16
Oct 6	Myiasis (Bots, grubs) and Louse Flies	18
Oct 8	Black Flies	13
Oct 10	Tsetse Flies	17
Oct 13	**Exam II**	
Oct 15	Fleas of Importance	9
Oct 17	Fleas of Importance	9
Oct 20	Fleas and Plague	9
Oct 22	Fleas and Murine Typhus	9
Oct 24	Lice of Importance	6
Oct 27	Louse-borne Typhus	6
Oct 29	Moths and Butterflies	20
Oct 31	True Bugs of Importance	7
Nov 3	True Bugs of Importance	7
Nov 5	**Exam III**	
Nov 7	Mites	25
Nov 10	Mites Part II	25
Nov 12	Mites Part III	25
Nov 14	Ticks	26
Nov 17	Ticks Part II	26
Nov 19	Ticks Part III	26
Nov 21	Spiders and Kin	23 & 24
Nov 24	Scorpions	22
Nov 26	Thanksgiving Holidays – No Class	
Nov 28	Thanksgiving Holidays – No Class	
Dec 1	Ants, Wasps, and Bees	21
Dec 3	Dead Day	
Dec 5	Dead Day	
Dec 8 10:15 am	**Final exam** for MWF 10:00	

Note – This outline is subject to change for reasons of course interest, time constraint, or instructor whim. The exams will be administered on the dates given, unless material relevant for a given exam has not been covered. Under such cases, an exam may be moved a class period or two to aid in the clarity and understanding of the material.

MEDICAL AND VETERINARY ENTOMOLOGY LABORATORY SCHEDULE

DATE	LABORATORY
Aug 25	No Lab – University Faculty meeting
Sept 1	Labor Day – No Lab
Sept 8	True Bugs and Beetles (Hemiptera & Coleoptera)
Sept 15	Lice (Phthiraptera)
Sept 22	Fleas (Siphonoptera)
Sept 29	Flies (Tabanidae & Muscidae)
Oct 6	Flies II (Culicidae, Psychodidae, &Simuliidae)
Oct 13	Flies III (Glossinidae, Muscoidea, & Hippoboscoidea)
Oct 20	Midterm Lab Practical
Oct 27	Mites (Acari)
Nov 3	Ticks (Acari)
Nov 10	Acari continued
Nov 17	Scorpions, Spiders, and kin (Cheliceriformes)
Nov 24	Hymenoptera
Dec 1	Final Lab Practical

We might combine or collapse one or two of these labs to conduct more field and outdoor learning activities. Please be aware that this lab schedule is subject to change based on specimen availability, weather, and class interest.