

**Biology 4410/5407 – Medical and Veterinary Entomology- Fall 2016**  
**Lecture M-W-F 11:00-11:50 WSB 107 Lab M 1:00-2:50 WSB 109/Fox 131**  
**Syllabus**

**Instructor:** Dr. Chris M. Ritzi

Office: Warnock Science Building – 216

Phone: 837-8420

Email: [critzi@sulross.edu](mailto:critzi@sulross.edu)

Office hours: MW 10-11, TR 11-12, T 3-5, or by appt.

Ms. Ethel Matthews

Fox 104

685-6733

[ematthews@midland.edu](mailto:ematthews@midland.edu)

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

**Text:** Mullen, G.R. and L.A. Durden. 2009. Medical and Veterinary Entomology. 2<sup>nd</sup> 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.

**Student Learning Outcomes**

The graduating biology student graduating with a BS in Biology should be able to:

- 1) Demonstrate an understanding of evolution by natural selection.
- 2) Demonstrate an integration of environmental awareness into everyday modern life.
- 3) Understanding how to incorporate molecular biology into the study of the whole organism.
- 4) Demonstrate utilization of various field techniques toward addressing scientific questions in the discipline.
- 5) Conduct basic laboratory experiments utilizing standard observational strategies.

**Course 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 22	Introduction	1
Aug 24	Classification of Parasitic Arthropods	2 & 3
Aug 26	Hematophagy and Disease Transmission	3
Aug 29	Epidemiology of Vector-Borne Diseases	3
Aug 31	Epidemiology continued	3
Sept 2	Cockroaches	5
Sept 5	Labor Day – No class	
Sept 7	Beetles	8
Sept 9	Beetles continued	8
Sept 12	<b>Exam I</b>	
Sept 14	Flies (Diptera)	10
Sept 16	Moth Flies and Sand Flies	11

Sept 19	Biting Midges	12
Sept 21	Mosquito Taxonomy and Biology	14
Sept 23	Mosquito Viruses and Diseases	14
Sept 26	Mosquito monitoring and control	14
Sept 28	Horse Flies and Deer Flies	15
Sept 30	Muscid flies	16
Oct 3	Myiasis (Bots, grubs) and Louse Flies	18
Oct 5	Black Flies	13
Oct 7	Tsetse Flies	17
Oct 10	<b>Exam II</b>	
Oct 12	Fleas of Importance	9
Oct 14	Fleas of Importance	9
Oct 17	Fleas and Plague	9
Oct 19	Fleas and Murine Typhus	9
Oct 21	Lice of Importance	6
Oct 24	Louse-borne Typhus	6
Oct 26	Moths and Butterflies	20
Oct 28	True Bugs of Importance	7
Oct 31	True Bugs of Importance	7
Nov 2	<b>Exam III</b>	
Nov 4	Mites	25
Nov 7	Mites Part II	25
Nov 9	Mites Part III	25
Nov 11	Ticks	26
Nov 14	Ticks Part II	26
Nov 16	Ticks Part III	26
Nov 18	Spiders and Kin	23 & 24
Nov 21	Scorpions	22
Nov 23	Thanksgiving Holidays – No Class	
Nov 25	Thanksgiving Holidays – No Class	
Nov 28	Ants, Wasps, and Bees	21
Nov 30	Dead Day (for this class)	
Dec 2 10:15 am	<b>Final exam</b> 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 22	No Lab – University Faculty meeting
Aug 29	Labor Day – No Lab
Sept 5	True Bugs and Beetles (Hemiptera & Coleoptera)
Sept 12	Lice (Phthiraptera)
Sept 19	Fleas (Siphonoptera)
Sept 26	Flies (Tabanidae & Muscidae)
Oct 3	Flies II (Culicidae, Psychodidae, & Simuliidae)
Oct 10	Flies III (Glossinidae, Muscoidea, & Hippoboscoidea)
Oct 17	Midterm Lab Practical
Oct 24	Mites (Acari)
Oct 31	Ticks (Acari)
Nov 7	Acari continued
Nov 14	Scorpions, Spiders, and kin (Cheliceriformes)
Nov 21	Hymenoptera
Nov 28	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.