

Medical and Veterinary Entomology

Entomology 7003 - Fall 2013 Syllabus

INSTRUCTORS

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TEACHING ASSISTANT

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MEETING LOCATION

The class will be meeting in Life Sciences room 101 on the LSU main campus.

Lecture: Tuesdays and Thursdays 10:30 am to 12:00 pm

Lab: Thursdays 2:30 pm to 5:00 pm

COURSE DESCRIPTION

Students in this course will discover the arthropod pests that affect human and animal health. Throughout the semester, we will explore the biology of arthropod pests, and the disease-causing pathogens they transmit to humans, livestock, pets, and wildlife. Each week, we will discuss an arthropod group of concern, along with the diseases they transmit in both temperate and tropical areas. A hands-on laboratory will provide an up close look at the biology of arthropods of medical and veterinary importance, along with their direct and indirect affects to humans and animals.

COURSE OBJECTIVES

1. To be able to recognize arthropods that affect human and animal health
2. To understand the mechanisms of disease transmission to humans and animals
3. To understand the dynamics of vector-borne diseases

TEXTBOOKS

We will be using the following textbook in the course: Medical and Veterinary Entomology, 2nd edition, Mullen and Durden, 2009, Academic Press. It is highly recommended that you purchase the text, as it will provide the foundation for what you will be learning in class and lab.

There is no specific laboratory manual required for this course. Identification keys and other related materials will be distributed in class.

SUGGESTED TEXTS/REFERENCES

The following texts are not recommended. If you plan on staying in the Medical and Veterinary Entomology field, the following texts would be beneficial.

- Eldridge, B. F., and J. D. Edman. 2000. Medical Entomology. Kluwer. Nowell, Mass. 659 pages.

OBLIGATORY STATEMENT ABOUT CHEATING

LSU's Code of Student Conduct may be found by accessing this site: <http://saa.lsu.edu/code-student-conduct>. Familiarize yourself with what constitutes cheating, especially plagiarism. If you cheat, you will be penalized a letter grade and be given an opportunity to meet the Dean of Students.

COURSE REQUIREMENTS

Students are required to attend all lectures and laboratories. Student's understanding of the material will be assessed during a laboratory practical exam, a mid-term lecture exam, and a final lecture exam.

GRADING POLICY

Final grade will be based on performance on two written exams (mid-term and final) and a laboratory practical exam. Each exam will be worth 1/3 of the final grade. There will be occasional opportunities for bonus points throughout the semester.

90-100%	A	Midterm Exam	100	(33%)
80-89	B	Final exam (cumulative)	100	(33%)
70-79	C	Laboratory practical exam	<u>100</u>	<u>(33%)</u>
60-69	D		300	(100%)
<60	F			

TENTATIVE LECTURE SCHEDULE

	Date	Topic	Associated Chapter(s)	Lecturer
1	August 27 th	Introduction and history of medical and veterinary entomology	1 and 2	Healy
2	August 29 th	Venomous arthropods, arthropods as direct agents and cause of allergies, and delusory parasitosis	1, and 20 to 24	Foil/Healy
3	Sept 3 rd	Epidemiology of vector-borne disease	3	Mores
4	Sept 5 th	Mechanical transmission by arthropods	3, 5	Foil
5	Sept 10 th	Microbiology and immunology as it relates to vector competence		Macaluso
6	Sept 12 th	Area-wide IPM of vector-borne diseases		Foil and Healy
7	Sept 17 th	Fleas, lice, and bed bugs	6, 7, 9	Foil
8	Sept 19 th	Flea and louse-borne pathogens	6,9	Macaluso
9	Sept 24 th	African Trypanosomiasis	17	Foil
10	Sept 26 th	American Trypanosomiasis and Leishmaniasis	7, 11	Foil
11	Oct 1 st	Biting midges and their veterinary importance	12, 10	Foil
12	Oct 3 rd	Black flies and Onchocerciasis	13	Healy
13	Oct 8 th	Higher order flies	15, 16, 19	Foil
14	Oct 10 th	Myiasis and forensic entomology	18, 4	Healy
15	Oct 15th	Mid Semester Lecture Exam		
16	Oct 17 th	Tick biology and tick-borne diseases part I	26	Foil and Macaluso
17	Oct 22 nd	Tick-borne diseases part II	26	Foil and Macaluso
18	Oct 24th	Fall Holiday, No lecture		
19	Oct 29 th	Mites of medical and veterinary importance	25	Foil and Macaluso
20	Oct 31 st	Mosquito biology	14	Healy
21	Nov 5 th	Mosquito-borne viruses	14	Healy
22	Nov 7 th	Mosquito-borne filariasis	14	Thomas Klei
23	Nov 12th	No Lecture		
24	Nov 14 th	Malaria in humans and animals	14	Healy
25	Nov 19 th	Genetic engineering of vectors	27	Macaluso
26	Nov 21 st	Spatial statistics applications for vector-borne diseases		Jack Malone
27	Nov 26 th	Modelling vector-borne diseases		Mores
28	Nov 28th	Thanksgiving Holiday, No lecture		
29	Dec 3 rd	Future of medical and veterinary entomology		Foil/Macaluso
30	Dec 5 th	TBA		Healy
31	TBA	Final Lecture Exam		

TENTATIVE LABORATORY SCHEDULE

If there are any changes to the laboratory schedule (ie. School cancellations due to inclement weather), an updated version can be found on the course Moodle website.

	Date	Identification Component	Field or Research Component	Instructor
1	August 29 th	Venomous arthropods and arthropods causing allergies	Brief exercise in public health	Foil/Healy
2	Sept 5 th	Morphological adaptations of parasitic arthropods (mouthparts, wings, legs, antennae, body shape)	Visit to SEM to view sensory structures	Foil/Healy
3	Sept 12 th	Visit to mosquito control		Healy / Foil
4	Sept 19 th	Pthiraptera, Siphonaptera, and Hemiptera	<i>Trypanosoma</i> epidemiology	Macaluso/ Foil/Healy
5	Sept 26 th	Nematoceran Diptera	Tour of colonies	Becker/Foil
6	Oct 3 rd	Biting flies	Insecticide resistance experiments	Becker/Foil
7	Oct 10 th	Forensically important flies	Time of death analysis	Healy
8	Oct 17 th	Acari	Tick dissections	Macaluso/ Foil
9	Oct 24 th	Fall Holiday, No lab		
10	Oct 31 st	Slides of vector-borne disease agents	Geimsa staining	Macaluso
11	Nov 7 th	Mosquito adults	Mosquito-borne filariasis	Healy/ Klei
12	Nov 14 th	Mosquito larvae	Sorting of field samples	Healy
13	Nov 21 st	Geographic Information System (GIS) and statistics used in medical entomology		Malone/ Mores
14	Nov 28 th	Thanksgiving Holiday, No lab		
15	Dec 5 th	Final Lab Exam		

ADDITIONAL INFORMATION

Additional information may be provided on the Moodle site for the Medical and Veterinary Entomology Course. This may include required and suggested reading materials.