

MEDICAL ENTOMOLOGY-ENT/ZOOL 371
Spring 2013
3 credits
TA: Xia Lee, 739 Russell Labs

Prof: DR. PASKEWITZ
739 Russell Labs
Office Hours: T, TH 11-12
paskewit@entomology.wisc.edu

GENERAL COURSE INFORMATION

Prerequisites: Undergraduate and graduate students interested in medically - important arthropods and their roles in disease transmission.

Student performance objectives:

1. Understand the Global Health Impact of insect transmitted diseases.
2. Appreciate the diversity of human pathogens and their insect vectors. Be able to identify the major types of insects that transmit diseases to people and animals.
3. Understand the biology of specific vector-pathogen interactions and of the disease in humans. For example: what happens after a tick attaches to a mouse infected with Lyme Disease? How does malaria make people sick?
4. Understand the methods used to control the vectors and the diseases and what the barriers are to effective control of many insect-transmitted diseases. Also the large scale unrecognized success stories.
5. Learn about insect transmitted diseases that are important in Wisconsin and the United States.
6. Examine current issues in Medical Entomology, including the introduction of exotic vectors and pathogens and the future of genetic technology for vector control.

Meetings: Lecture-TTH at 9:55 in 150 Russell Labs, Laboratory-W at 1:20-4:20 147 Russell Labs. Lab attendance is mandatory.

Required text: None. Learn@UW will have lecture notes and other supporting materials.

Course requirements: Students will be expected to complete reading assignments as instructed and be prepared to discuss material in class. Students are required to attend all laboratories.

If you anticipate missing any exam because of a religious holiday, please let me know immediately (within the first 2 weeks of class) so that we can schedule a make-up time. No make-up will be scheduled if you forget to notify me now.

Grades: Grades will be assigned on the basis of two lecture exams (15% each = 30%), a comprehensive final (20%) and the laboratory (50%). Lab grades will be based on labwork, written reports and presentations (40%) and attendance (10%). 100-92.5 = A, 92.4-87.5 = AB, 87.4-82.5 = B, 82.4-78.5 = BC, 78.4-70 = C, 69.9-60.0 = D, and anything below 60.0 = F. Lab attendance is mandatory.

Academic honesty: University policies regarding cheating and plagiarizing are upheld in this classroom. This includes penalties up to and including expulsion from the University, but at the least it means you receive an F for the course. If you are unsure whether something constitutes plagiarism, come see me. Cheating means copying from someone else's paper or your own notes during tests or turning in a paper you did not write. Since you all know this is wrong, no second chances.

Schedule of Lecture & Lab Topics
Medical Entomology (Ent 371, Zool 371)
Fall 2013

<u>Date</u>	<u>Topic</u>
January 22 (T)	Introduction to the course.
Jan 23 (W)	LABORATORY 1. Basic Insect Biology. Taxonomy and anatomy.
Jan 24 (Th)	Public Health Entomology and Arthropods.
Jan 29 (T)	Insect/parasite interactions. Structure and function of the internal organs.
Jan 30 (W)	LABORATORY 2. Insect and mosquito biology.
Jan 31 (Th)	Biology of mosquitoes and key concepts.
Feb 5 (T)	Mosquitoes and Lymphatic Filariasis. (Guest lecture: Dr. Bruce Christensen, School of Veterinary Medicine)
Feb 6 (W)	LABORATORY 3. Mosquito biology: internal anatomy and filarial worms.
Feb 7 (Th)	Filariasis. (Disease control and prevention).
Feb 12 (T)	Mosquitoes and Malaria. Global health perspectives.
Feb 13 (W)	LABORATORY 4. Mosquito host attraction & behavior.
Feb 14 (Th)	Malaria: prevention and control by targeting the parasite.
Feb 19 (T)	Mosquitoes & Malaria: control programs based on larval biology.
Feb 20 (W)	LABORATORY 5. Mosquito Control: larval ecology.
Feb 21 (Th)	Mosquitoes and malaria: control programs based on adult biology.
Feb 26 (T)	Changing patterns of disease.
Feb 27 (W)	LABORATORY 6. Mosquito control: adult biology.
Feb 28 (Th)	First Lecture Exam.

Mar 5 (T)	Introduction to arboviruses (arthropod-borne viruses). West Nile virus in Wisconsin.
Mar 6 (W)	LABORATORY 7. Guest: John Hausbeck, Dane County Public Health. Assign Group Presentations. Group Project experiments.
Mar 7 (Th)	Mosquitoes and arboviruses: West Nile virus in Chicago (guest lecture: Christina Newman, Pathobiological Sciences)
Mar 12 (T)	Current research: Mosquitoes and arboviruses (guest lecture: Dr. Kristen Bernard, School of Veterinary Medicine)
Mar 13 (W)	LABORATORY 8. Group presentations on encephalitides. Group Project Experiments.
Mar 14 (Th)	Mosquitoes and arboviruses: Yellow fever.
Mar 19 (T)	Mosquitoes and arboviruses: Dengue and dengue hemorrhagic fever
Mar 20 (W)	LABORATORY 9. Group presentations on encephalitides. Start papers on group experiments.
Mar 21 (Th)	Transgenic mosquitoes and disease control.
Mar 23-31	Spring Recess
Apr 2 (T)	Phlebotomine sandflies and leishmaniasis. Biology of <i>Leishmania</i> . Diagnosis, symptoms and treatment of the disease. Vector biology and control
Apr 3 (W)	LABORATORY 10. Blackflies and sandflies. Leishmaniasis epidemiology.
Apr 4 (Th)	Black flies and River blindness. Biology of the Parasite. Diagnosis, symptoms and treatment of the disease. Biology of the black fly vector. The West African Onchocerciasis Control Programme.
Apr 9 (T)	Higher Flies. Veterinary entomology and myiasis
Apr 10 (W)	LABORATORY 11. Flies and Med/Vet/Forensic Entomology. Papers due.
Apr 11 (Th)	Tse-tse flies and African trypanosomiasis. Biology of the pathogen. Diagnosis, symptoms and treatment of sleeping sickness. Vector biology and control.
Apr 16 (T)	Second lecture exam.

- Apr 17 (W) **LABORATORY 12. Ectoparasites (ticks, mites, fleas, lice). Groups assigned for investigations of tick and mite-transmitted disease.**
- Apr 18 (Th) Ticks and Disease in Wisconsin. Guest Lecture: Diep Hoang Johnson (Wisconsin Department of Health)
- Apr 23 (T) Introduction to ticks and research on tick-borne disease in Wisconsin.
- Apr 24 (W) **LABORATORY 13. Field trip dependent on weather. Otherwise: venomous arthropods and other orders of minor medical importance**
- Apr 25 (Th) Fleas and Lice. The historical impacts of plague and typhus.
- Apr 30 (T) Mini-symposium presentations on ticks and mites
- May 1 (W) **LABORATORY 14. Mini symposium presentations on ticks and mites**
- May 2 (Th) Bedbugs and cockroaches. Delusory parasitosis and entomophobia. (Guest Lecture; Phil Pellitteri, Depart of Entomology Insect Diagnostician).
- May 7 (T) Kissing Bugs and Chagas Disease
- May 8 (W) **Laboratory 15. Field collecting trip or Venomous arthropods and other orders of minor medical importance.**
- May 9 (Th) Wrap up.

FINAL LECTURE EXAM: TIME & DATE TO BE ANNOUNCED