ENTO 618
Medical and Veterinary Entomology

Fall 2020; 3 credit hours
Lecture: Mon and Wed
12:00pm – 12:50pm; HPCT 205

Lab: Asynchronous

Course Description:

Taxonomy, biology and epidemiological role of insects and other arthropods that directly and/or indirectly affect the health and well-being of humans and animals. This course will focus on medical and veterinary entomology as it applies to the biology of the arthropods and pathosystems, understanding transmission of vectorborne diseases, and methods of control to protect public and animal health. We will provide the material within the One Health framework which emphasizes the multiple disciplines necessary to understand and management arthropods and agents of disease which often bridge human, wildlife, and domestic animals. Current and emerging knowledge of these topics will be aided by contemporary primary literature which will be reviewed and analyzed. Laboratory sessions will aid in the ability to identify medically important arthropods.

Prerequisites: Graduate classification or approval of instructor.

Learning Outcomes:

- Identify, classify, and describe medically important arthropods;
- Recognize diseases that can be caused by agents transmitted by each arthropod group and their association with the fields of clinical and preventative public health;
- Describe the roles of arthropods in the transmission and maintenance of vector-borne disease pathogens;
- Demonstrate comprehension of vector biology as applied to the development of methods to control vectors and vector borne diseases;
- Interpret recent literature and explain how modern techniques may be used to disrupt the vector- borne disease cycle;
- Review medical entomology scientific literature and conduct a quantitative synthesis to fill a knowledge gap in the field.

Co-Instructors:

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Materials
Required Text: *Medical and Veterinary Entomology*, Eds. G. Mullen and L. Durden, Academic Press, NY. 3rd edition. 2019. PDFs of entire book available via https://library.tamu.edu/
Readings: Selected readings from the primary literature posted to eCampus.
Lab Manual: Medical Entomology ENTO 423 Laboratory Manual. Available at MSC Bookstore.
Lectures: Either in person or online per details in the schedule below. All lectures will use Zoom which can be accessed via eCampus and recorded lectures will be available in eCampus.

Literature Review Course Project

A group project will be conducted which involves a systematic literature review and quantitative synthesis. This project aims to identify a gap in knowledge or research question on a contemporary topic related medical and veterinary entomology that the students will identify and complete. The culmination of this project which will occur throughout the semester is an oral presentation and written manuscript which outlines the review of the literature and results of the synthesis of data. Further details can be found within the project assignment on eCampus.

Laboratory

The primary purpose for the laboratory sessions will be to view arthropods relevant to medical entomology and learn how to recognize them to species and utilize dichotomous keys as necessary. Our laboratory and teaching collection is the same as the undergraduate-level Veterinary Entomology and Medical Entomology labs so please be respectful of the specimens which are difficult to replace.

Guest Lectures

Guest lectures are planned to feature different professionals who focus in vector-borne diseases. Invited speakers may include medical entomologists or zoonosis control veterinarians from the state health department, military entomologists, academic researchers with expertise in particular disease systems, or others. Each guest speaker will show the real-world application of the concepts learned in class, and asked to share their educational background and career path.

Evaluation: A=90–100%; B=80–89%; C=70–79%; D=60–69%; F=<60%

ENTO 618: A total of 275 points are available

- **Attendance and participation in class discussions (25 pts).** Students will receive 1 point for participating in each lecture and completing the review of a primary article related to each lecture. We will have an estimated 25 lectures with articles assigned.
- **Three lecture exams (Online via eCampus; open book; 50 pts each)**
- **Literature review project (50 pts for written portion and 50pts for oral portion)**

Late Policy: Late assignments will have a 10% deduction in points for up to 1 week, after which no credit will be issued, except in the case of a University excused absence.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Attendance

Both the university and instructors view class attendance as an individual student responsibility. Your grade will be based in part by attendance and participation. After four unexcused absences for lectures or labs, students will have five points deducted from the attendance points for each additional unexcused absence. Make-up experiences/ assignments for class activities that occur outside the scheduled meeting times will be available in the event of a University approved excuse. No Makeup work is accepted without a University approved excuse. Absences will be excused as per TAMU Student Rule #7 (http://student-rules.tamu.edu/rule07).

ADA Policy Statement

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Academic Integrity Statement

An Aggie does not lie, cheat or steal, or tolerate those who do. Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's Title IX webpage.

Campus Safety Measures

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University has adopted policies and practices for the Fall 2020 academic term to limit virus transmission. Students must observe the following practices while participating in face-to-face courses and course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.):

- Self-monitoring—Students should follow CDC recommendations for self-monitoring. **Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction.**
- Face Coverings—Face coverings (cloth face covering, surgical mask, etc.) must be properly worn in all non-private spaces including classrooms, teaching laboratories, common spaces such as lobbies and hallways, public study spaces, libraries, academic resource and support offices, and outdoor spaces where 6 feet of physical distancing is difficult to reliably maintain. Description of face coverings and additional guidance are provided in the Face Covering policy and Frequently Asked Questions (FAQ) available on the Provost website.
- Physical Distancing—Physical distancing must be maintained between students, instructors, and others in course and course-related activities.
- Classroom Ingress/Egress—Students must follow marked pathways for entering and exiting classrooms and other teaching spaces. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- To attend a face-to-face class, students must wear a face covering (or a face shield if they have an exemption letter). If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Student Conduct office for sanctions. Additionally, the faculty member may choose to teach that day's class remotely for all students.

Personal Illness and Quarantine

Students required to quarantine must participate in courses and course-related activities remotely and **must not attend face-to-face course activities**. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.

Students experiencing personal injury or Illness that is too severe for the student to attend class qualify for an excused absence (See Student Rule 7, Section 7.2.2.) To receive an excused absence, students must comply with the documentation and notification guidelines outlined in Student Rule 7. While Student Rule 7, Section 7.3.2.1, indicates a medical confirmation note from the student's medical provider is preferred, **for Fall 2020 only, students may use the Explanatory Statement for Absence from Class form in lieu of a medical confirmation. Students must submit the Explanatory Statement for Absence from Class within two business days after the last date of absence.**

Operational Details for Fall 2020 Courses

For additional information, please review the FAQ on Fall 2020 courses at Texas A&M University.

SCHEDULE IS SUBJECT TO CHANGE

Week	Lecture/Lab Topics	Associated assignments
Aug 19	• Introductions (Slotman and Hamer, online) Course overview	
Aug 24	• Biology of blood feeding (Slotman, in person)	Chapter 1 Introduction
Aug 26	• Evolution of infectious disease (Slotman, online)	Chapter 2 Morphological Adaptations
Aug 24-28	**Lab:** Intro and Group project overviews (Hamer and Slotman, online)	
Aug 31	• Mites (Hamer, in person)	Chapter 26 Mites
Sept 2	• Direct effects of arthropods (Slotman, online)	Chapter 3 Arthropod toxins and venom
Aug 31-Sept 4	**Lab:** Mites	Chapter 4 Epidemiology of Vectorborne Diseases
Sept 7	• Dynamics of disease transmission (Slotman, in person)	
Sept 9	• Tick intro (Hamer, online)	Chapter 27 Ticks
Sept 7-11	**Lab:** Ticks	
Sept 14	• Tick-borne disease 1 (Hamer, in person)	
Sept 16	• Tick-borne disease 2 (Hamer, online)	
Sept 14-18	**Lab:** Guest Lecture: Stanton E. Cope, PhD VP, Technical Products and Services AP&G (Catchmaster) Captain (Retired), United States Navy Past President, American Mosquito Control Association, 2016-17 Live zoom presentation on Friday, Sept 18 at 1pm and recorded	
Sept 21	• **Lecture Exam 1 (eCampus)**	
Sept 23	• Mosquito - *Anopheles* and malaria (Slotman, in person)	Chapter 11 Diptera
Sept 21-25	**Lab:** Mosquito Larvae	
Sept 28	• Mosquito - *Culex* and encephalitis (Hamer, in person)	Chapter 15 Mosquitoes
Sept 30	• Mosquito - *Aedes aegypti* and arboviruses (Slotman, online)	
Sept 28 – Oct 2	**Lab:** Adult Mosquitoes	
Oct 5	• Mosquito – filariasis (Slotman, in person)	
Oct 7	• Myiasis (Slotman, online)	Chapter 19 Myiasis
Oct 5-9	**Lab:** Guest Lecture: Guillermo Garcia Medical Care Development International Live zoom presentation on Friday, Oct 9 at 1pm and recorded	
Oct 12	• *Culicoides* (Hamer, in person)	Chapter 15 Biting Midges
Oct 14	• Sandflies (Slotman, online)	Chapter 12 Sand Flies
Oct 12-16	Lab: Adult Flies	

Oct 19	• Black flies (Slotman, in person)	Chapter 14 Black Flies
Oct 21	• Tsetse fly and sleeping sickness (Slotman, online)	Chapter 18 Tsetse Flies
Oct 19-23	Lab: Fly Maggots	

Oct 26	• **Lecture Exam 2 (eCampus)**	
Oct 28	• Kissing bugs (Hamer, online)	Chapter 8 True Bugs
Oct 26-30	**Lab:** Fleas, Lice, True Bugs	
Nov 2	• Fleas and lice (Slotman, in person)	Chapter 10 Fleas Chapter 7 Lice
Nov 4	• Vector competence (Hamer, online)	
Nov 2-6	**Lab:** Guest Lecture: Lee Cohnstaedt, PhD Research Entomologist Agricultural Research Service United States Department of Agriculture Live zoom presentation on Friday, Nov 6 at 1pm and recorded	
Nov 9	• Vector control 1 (Hamer, in person)	
Nov 11	• Vector control 2 (Hamer, online)	
Nov 9-13	**Lab:** Class project work time	
Nov 16	• Arthropod containment (Hamer, in person)	
Nov 18	• **Lecture Exam 3 (eCampus)**	
Nov 23	**Lab: Final Presentations (online)**	
Dec 2	**Group project manuscript due (and group grades)**	

******There will be NO FINAL EXAM during finals week for ENTO 618*****