

# ENY 4660L/6665L: Medical and Veterinary Entomology Lab

Times: TBA - Steinmetz Hall (Location TBD)  
Fall Semester

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## **Instructor:**

Dr. Edwin R. Burgess IV

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**Course Overview:** Medical and Veterinary Entomology Laboratory is a 1-credit class that provides students the opportunity to observe and handle the specimens discussed in the companion lecture of this course. Laboratory exercises are designed to reinforce concepts introduced during the companion lecture and provide hands-on viewing of arthropods for future identification. Some students may be making pest management decisions in the future; it is therefore essential that they be able to properly identify the pest that they are attempting to manage. This is increasingly important as the ecological and social pressures increase for control of non-specific arthropod pests with minimal effects on human health and the environment. Students will be given the opportunity to learn about evolving relationships that many of the species have developed in order to survive as an ectoparasite and/or serve as an efficient vector. Several evaluation methods, including laboratory quizzes, laboratory exams, and a collection will be administered so that students can demonstrate their knowledge of arthropod identification, pest importance to human and animal health, and effective management tactics. We will take several trips to local sites during the laboratory session where students will have the opportunity to examine issues on site and to obtain specimens for their collections. Transportation will be provided.

**Learning Objectives:** Students who have completed this course will be able to:

1. Identify the major pests of veterinary entomology and provide pest management solutions.
2. Learn to recognize the diversity of arthropods of medical and veterinary importance.
3. Learn the biology and ecology of the primary pests of importance.
4. Compare and contrast the life history strategies used by major vector and pest species of medical and veterinary importance.
5. Compare the variety of taxa and recognize that this is but an example of the diversity in the world.

**Lab manual:**

**Required** – Furman, D. P. and E. P. Catts. Manual of Medical Entomology. 4<sup>th</sup> edition. Cambridge University Press, London. ([Provided via loan](#) from Dr. Burgess).

Additional insect keys for use in class and in your take home practical and insect collection can be found here.

Manual on livestock ticks

Whitworth blow fly key

Immature Coleoptera

CDC Keys

Orange “Keys to FL Mosquitoes” Websites: <http://fmeal.ifas.ufl.edu/key/>

[http://fmeal.ifas.ufl.edu/key/id\\_tables/idtables\\_adult.shtml](http://fmeal.ifas.ufl.edu/key/id_tables/idtables_adult.shtml)

## CANVAS:

This course utilized the CANVAS system at the University of Florida.

<https://elearning2.courses.ufl.edu/portal> Course materials, including PowerPoints (as PDF’s), will be placed on this site for full student access. The instructor reserves the right to remove these files at his discretion and will do so if attendance is poor. Additionally, student scores on quizzes and other evaluative measures will be posted as they are finalized.

## Tentative Schedule, Fall (by week)

	Topic	Activity Due
<u>Week 2</u>	<u>Intro</u> , collection instructions, collection materials, insect identification to Order	Syllabus quiz
<u>Week 3</u>	<u>Identification</u> of fleas, Nematocera, and Brachycera	Quiz 1
<u>Week 4</u>	<u>Identification</u> of mosquito larvae	Quiz 2 (Nema, Brachy, fleas)
<u>Week 5</u>	<u>Identification</u> of mosquito adults	Quiz 3 (mosquito larvae)
<u>Week 6</u>	<u>Hemiptera</u> , lice, spiders, Hymenoptera, cockroaches & others.	Quiz 4 (mosquito adults)
<u>Week 7</u>	<u>Lab Practical (labs 1-7)</u> Forensic entomology	
<u>Week 8</u>	<u>Field trip</u> - Beef Teaching Unit and Horse Teaching Unit	<b>Collection #1 due (mosquitoes, fleas, lice) at the beginning of class (12:50 pm)</b>
<u>Week 9</u>	<u>Identification</u> of muscoid fly adults and immature Diptera	

<b><u>Week 10</u></b>	Identification of ticks	Quiz 5 (muscoïd flies)
<b><u>Week 11</u></b>	Identification of mites	Quiz 6 (immature Diptera)
<b><u>Week 12</u></b>	<b>CDC Bottle Bioassay -or- Oxitec Presentation</b>	Quiz 7 (ticks)
<b><u>Week 13</u></b>	No class activity – open lab to work on your collections and take quiz.	Quiz 8 (mites and labs 8-13)
<b><u>Week 14</u></b>	<b>CDC Bottle Bioassay -or- Oxitec Presentation</b>	<b>Collection #2 due (other flies, Hemiptera, arachnids) at the beginning of class (12:50 pm)</b>
<b><u>Week 15</u></b>	<b>Individual practical</b>	
<b><u>Week 16</u></b>	Turn in collection equipment, lab manuals, collect specimens you want to keep (or they will be tossed or absorbed into the med vet collection)	<b>CDC Bottle Bioassay write-up.</b>

## Grading Policy

To reference the University of Florida grading policy, please visit:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

## Grading Scale

A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	63-66%
D-	60-62%
E	0-59%

Grades are rounded are not rounded. I only consider the number to the left of the decimal. Example: an 89.98% does not receive an A because it is an 89%. Grades are assigned based on performance not effort.

## Grade Breakdown

Activity (number)	Points Per Activity	Total Points
Lab Practical	50	50
Individual Practical	50/100	50/100
Collection #1	50/74	50/74
Collection #2	50/62	50/62
Weekly in-lab quizzes (8)	10	80

Syllabus quiz (1)	5	5
CDC Bottle Bioassay writeup (1)	25	25
		<b>310/396</b>
		<b>4660/6665</b>

## Graded Work

Identification of medical and veterinary arthropods is paramount to their successful management. Therefore, students are provided a variety of opportunities to demonstrate their capabilities in specimen identification. Students in the laboratory component of this class are evaluated through multiple measures. Total points for this are 400. Your grade is determined according to the scale provided above.

**Lab Practical.** This will be a time-monitored, sight identification test of each student's skills and will be administered on **early October**. Due to the difficulty in setting up this exam, a make-up exam must be approved by the instructor, **must** be scheduled **prior to the exam** and are given only under special circumstances. **Some questions will be different for 6665!**

**Individual Practical.** Each student will be provided with 25 unknown specimens that they are responsible for providing identifications and a Microsoft Excel sheet to insert their answers (also provided). This "Individual Practical" will occur **in Late November**. Students are responsible for identifying specimens to the level required for class. All specimens are from the "multi-colored" insect specimen sheet. Students should have this document with them on the exam date and are welcome to use any keys or notes that they have acquired during this class. Each collection is unique and students are required to complete this alone and during the 3 hr lab period. Hand-written Excel sheets are to be turned in. No electronic devices are allowed during this evaluation. Prepare yourself accordingly.

**Collections.** The collections will be done in two parts, consisting of 24 specimens of medical and veterinary importance and is required of all students in ENY 4660. An initial description is provided below and additional instruction is provided in a separate handout provided in laboratory. Collection 1 is due **in early October** and Collection 2 is due **in Mid November**. **6665 students will have different requirements.**

**You will receive an E for the class if you fail to turn in both collections.**

**Weekly in-lab quizzes.** Eight (8) weekly lab quizzes will be administered. Quizzes will be given at approximately 30 minutes before the end of class and will last no longer than 30 minutes.

**Syllabus quiz.** One syllabus quiz is offered online during the first week of class.

**CDC Bottle Bioassay Writeup.** A written analysis of the CDC bottle bioassay lab will be required. A handout for the analysis will be provided on Canvas later. Each of these is worth 15 points and are submitted online.

## **Collection Requirements**

Students in ENY 4660L and 6665L are required to develop and submit an arthropod collection containing different species of medical or veterinary importance. Students must be prepared to defend the inclusion of the specimens and are required to provide a listing of all specimens and their importance. Collections are due dates are listed on Canvas. Additional and specific instruction are provided on the Collection Requirements document. For each business day that collections are late, 10 points will be deducted from the possible score. Late collections, with penalty, must be delivered to room 3213 or 3237 and handed to Dr. Burgess or the TA before Noon of each day. The MS Excel template that must be used and the grading rubric are provided (see Canvas Home page). **The insect specimen sheet has the different requirements for 4660L and 6665L students.**

Attendance. Students are expected to attend each class period and stay for the entire period. The laboratory is several periods long and students are allowed to leave at their leisure. Considerable material is provided in the laboratory session and students who do the best in this course are those that utilize this unique opportunity to student specimens in depth.

## **University of Florida Policies**

### **University Policy on Missing Class and Make-Up Work**

Please see the following link for rules and regulations on absence and coursework make-up.

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

I ask that you please let me know as far ahead of time for planned absences. You can do so via email or a visit to my office hours.

### **University policy on accommodating students with disabilities**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the students who must then provide this documentation to the instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565,

[www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

### **Course Evaluation**

It is your duty as a student to provide feedback on this course. Feedback will be completed in the form of online evaluations at <https://evaluations.ufl.edu>. The online evaluations are generally

open during the final 2-3 weeks of the semester, but you will be notified of their availability. Results will be made available at <https://evaluations.ufl.edu/results/>.

## **Academic Honesty**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*” For more information on the Honor Code, please visit: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

## **Academic/Personal Help Services**

The ramifications of academic dishonesty are often felt beyond your academic career, and can have real consequences for your chances at employment, advanced degree programs, etc. Often, academic dishonesty is committed in response to a stress in life, work, school, etc. The Counseling and Wellness Center on campus offers free, confidential services that can help you. They can be found at: [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/) (University Counseling and Wellness Center, 3190 Radio Rd. 352-392-1575).

## **Technical Support**

Technical trouble with E-Learning should be addressed with the IT help desk at <http://helpdesk.ufl.edu/>. A ticket number should be obtained from IT before contacting Dr. Burgess. This ticket number will have a date and time stamp. Without a ticket number, you will not be allowed make-up of online assignments/quizzes/exams.

## **Plagiarism**

Plagiarism is a serious problem in academia today, especially with the ease of obtaining information from the World Wide Web. Plagiarism is defined as representing the words or ideas of another person as one’s own, without attribution to the source. All words and ideas must be attributed to a source unless they are considered common knowledge (i.e., widely known by many people and found in many different sources). There are many kinds of plagiarism, as you will read on the Guide to Plagiarism website referenced below.

Plagiarism is unethical, unacceptable in science, and prohibited by the UF Student Honor Code (<http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php>). The consequences for plagiarism while at the University of Florida range from receiving a grade of zero for the plagiarized assignment or a failing grade for the course, to, for repeated offenses, expulsion from the university. Plagiarism after graduate training calls into question one’s scientific integrity and can lead to banning of publication in journals and the loss of jobs/careers.

In some countries, it is an acceptable practice to write in a manner that faculty members at the University of Florida consider to be plagiarism. Students studying in our university and with plans to publish their research in the English language need to know what plagiarism is and how to avoid it. **Students who plagiarize will be caught and consequences will be applied. Many**

faculty in our department check all written assignments using an anti-plagiarism software called Turnitin® (<http://www.at.ufl.edu/~turnitin/about.html>).

For further information and examples of plagiarism, I **strongly suggest** that you please read the George Smathers' Library Guide to Plagiarism at

[http://www.uflib.ufl.edu/msl/services/tutorials/plagiarism/student\\_intro.html](http://www.uflib.ufl.edu/msl/services/tutorials/plagiarism/student_intro.html)

**Please understand that our purpose in bringing to your attention the matter of plagiarism is to help train you to be ethical scientists, not to impugn your character.**