

**ENY-6665, Advanced Medical & Veterinary Entomology, 3 credits  
Distance Education**

**Syllabus**

**Instructor:** Dr. Philip G. Koehler  
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**Office:** Urban Entomology Building, Bldg 1278  
**Office Hours:** Weekdays 8:00-5:00  
**Co-Course Requirements:** ENY 6665L  
**Sakai Website:** <http://lss.at.ufl.edu> (login with UF Gatorlink username and password)

**Email:** each student must have an active email account. The University of Florida requires that you obtain a student ID# and a Gatorlink email account as part of your registration process. The instructor may post class notices to your Gatorlink email account. While many of you already have independent email accounts, you must also obtain a University of Florida Gatorlink email account for use as a registered student. Please send the instructor an email message as soon as you have successfully registered for this course.

**Course Description:** This course presents the major insect, mite, and tick vectors of disease to man and animals. Students will learn to identify and understand the life cycles, morphology, and behavior of mosquitoes, ticks, mites, lice, fleas, and other disease vectors. Students also will learn about major arthropod-transmitted disease cycles, including malaria, Lyme disease, West Nile virus, leishmaniasis, and plague. The interaction between the disease-causing pathogen and the arthropod vector will be covered, including *biological* and *mechanical* transmission of pathogens as well as the mechanical damage that a parasite inflicts on its host.

**Critical Thinking:** With international travel and movement of people from place to place, it is difficult to determine the origins of a disease outbreak. Students will be expected to identify the vector, pathogen, and location of a person associated with a vector-borne disease. Critical thinking & communication will be evaluated by downloading a research paper from the course website, analyzing each of the specific portions of the paper (literature review, objectives, materials and methods, results, and discussion), and submitting an evaluation of the downloaded research paper as a Word document.

**Special Research Project:** Each student will be responsible for a written research report and presentation. The topic must be approved by instructor, and should be an in-depth review of the scientific literature. The research project report must be written as a scientific paper in Entomological Society of America format. Powerpoint presentation and written script will be a 10 minute scientific paper suitable for presentation at a scientific meeting.

**Course Lectures:** Course lectures are on the Sakai course website. The lectures are downloadable in Zip format. You will have to unzip (extract) the lecture files in order to watch and hear them. Lecture notes and class schedule are also on the Sakai website and available for download.

**Text:** Gary Mullen and Lance Durden. 2009. *Medical and Veterinary Entomology, 2nd Edition*. Academic Press. ISBN #: 978-0-12-372500-4.

**Lecture Notebook:** Print this on your own. You can have it printed /bound at a copy store if you desire.

**Grading:** The exams will be timed exams taken on Sakai. The final exam will be comprehensive of all lectures. The course is based on a total of 1200 points:

Exam 1	200 points
Exam 2	200 points
Final exam	400 points
Critical Thinking & Communication	200 points
Special research topic	200 points

**Grading scale (%):**

94-100	A
90-<94	A-
87-<90	B+
83-<87	B
80-<83	B-
77-<80	C+
74-<77	C
70-<74	C-
67-<70	D+
64-<67	D
60-<64	D-
<60	E

**Specific Evaluations:** Your grade in the lecture course will be based on the points you earn and determined by the percentage breakdown of points earned. The percentage is then applied to the grading scale. Exams 1 & 2 and identification exams are not comprehensive and will be timed exams located on Sakai. Final exams (lecture and laboratory) will be comprehensive and also located on Sakai. Your “critical thinking & communication document” will be graded by evaluating the critique of the 5 sections of the downloaded research paper on a scale of 40 points per section. Your research paper will be graded on the rubric provided in Sakai.

**Lecture Subjects:**

1. Introduction to Med & Vet Entomology
2. Classification of Arthropod-borne diseases
3. Hematophagy, disease transmission and epidemiology
4. Flies (Diptera) of Medical and Veterinary Importance
5. Moth flies: Leishmaniasis and Bartonellosis
6. Biting Midges (Ceratopogonidae)
7. Mosquito Taxonomy, Biology, and Behavior

8. Mosquito viruses: EEE, VEE, SLE, Yellow fever, West Nile virus
9. Mosquito surveillance
10. Malaria
11. Horse flies, Deer Flies: EIA, Anaplasmosis
12. Muscid flies
13. Myiasis (Muscoidea)
14. Myiasis (Skin Bots and Grubs) and Louse flies
15. Black flies of Medical and Veterinary Importance
16. Filariasis: Mansonellosis, Onchocerciasis
17. No lecture
18. Lice of Medical and Veterinary Importance
19. Rickettsial Diseases: Epidemic Typhus, etc.
20. Mites: Rickettsialpox and Tsutsugamushi
21. Mites and Acariasis: Mange, Scabies, Chiggers
22. Spiders and Scorpions
23. Fleas (Siphonaptera) of Medical and Veterinary Importance
24. Plague and Murine Typhus
25. Ticks of Medical and Veterinary Importance
26. Lyme disease, Rocky Mountain Spotted Fever, Tularemia
27. True Bugs (Hemiptera): Kissing bugs and Bedbugs
28. Chagas Disease
29. Tsetse flies
30. Lepidoptera and Hymenoptera

### **Research Report Requirements**

1. Select a specific topic. You may want to select from the list of topics that have been addressed in Annual Review of Entomology articles. Do not choose a general topic select one that addresses a very specific issue.
2. Your job is to dig up and read as many of the original literature papers as possible on the subject and summarize them for publication as an Annual Review of Entomology article of your own.
3. Update the publications with more current literature.
4. Include pertinent data tables and graphs from other researchers in the article.
5. The article must be written in Entomological Society of America format. The style manual is located at: (<http://www.entsoc.org/pubs/publish/style>)
6. The article must be at least 12 double-spaced pages in length. It should be set up as a manuscript ready for submission to ESA. I will take off for bad formatting.
7. The sections must be Title page, Abstract, Key Words, Body of Report, Literature Cited, Tables, List of Figures, and Figures on separate pages.

In addition to the report, I expect you to prepare a Powerpoint presentation on the subject of the report. The Powerpoint presentation should be in a format for presentation as a 10-minute paper at the ESA annual meeting. I expect the Powerpoint presentation to follow the material in the research report and be scripted so you could go to ESA and present the talk by reading the script.

### **Some Examples of Topics**

- Role of arthropod saliva in blood feeding.
- Molecular systematics of Anopheles
- Manipulation of medically important insect vectors by their parasites
- Feather mites (Acari: Astigmata): ecology, behavior, and evolution.

The ascendancy of *Amblyomma americanum* as a vector of pathogens affecting humans in the United States.  
Invasions by insect vectors of human disease.  
Arthropod allergens and human health.  
Iron metabolism in insects.  
Predicting St. Louis encephalitis virus epidemics  
Mating strategies and spermiogenesis in ixodid ticks.  
Medicinal maggots: an ancient remedy for some contemporary afflictions.  
Culicoides biting midges: their role as arbovirus vectors.  
Emerging and resurging vector borne diseases.  
Malaria parasite development in mosquitoes.  
The biology, ecology, and management of the cat flea.  
Bionomics of the face fly, *Musca autumnalis*.  
Host immunity to ticks.  
Culicoides variipennis and bluetongue-virus epidemiology in the United States.  
Evolution of ticks.  
Malaria: current and future prospects for control.  
Tick salivary gland physiology.  
Mosquito sugar feeding and reproductive energetics.  
Onchocerciasis vector control: a chronological summary with comments on eradication, reinvasion, and insecticide resistance.

### **Grades and Grade Points**

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### **Absences and Make-Up Work**

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

### **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.*”

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students

Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

### **Software Use:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database
- *Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

### **Services for 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 student 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/)

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See <http://distance.ufl.edu/student-complaints> for more details.