Forensic Entomology 4701, Section 5706

Spring 2019 Syllabus

Instructor: Dr. Phillip Kaufman, Professor, Entomology and Nematology Department. His office is 3213, Entomology and Nematology Building on Natural Area Drive. Telephone: (352) 273-3975.

Office Hours: Dr. Kaufman will be available to students by appointment. He can be reached on e-mail pkaufman@ufl.edu at all times. Please note that I do not meet with students during the hour before class meets without a confirmed appointment. If you show up at my office during the hour before class, I will not discuss the course with you, as this is my lecture preparation time.

Meeting time and place: Lecture: Monday Periods 6 and 7 (12:50-2:45 pm)
Wednesday Period 6 (12:50-1:40 pm)
Room 2218, Entomology & Nematology Building

Course description: Forensic Entomology is a 3-credit course that presents current information on the role of arthropods in decomposition, the role of forensic entomology in criminal and civil investigations and the increasing importance of science on society. The material discussed in this course deals with death and some may consider images and concepts presented disturbing.

Course objective: The goal of this course is to provide students with an understanding of the importance and role that arthropods play in civil and criminal investigations. Students will learn to critically analyze published literature on this subject by leading discussions of these papers with classmates through structured exercises. Students who successfully complete this course will be aware of the challenges and opportunities presented by this emerging discipline.

Student Demeanor: Students are expected to arrive to class on time and to be prepared for the scheduled event. Cell phones are to be turned OFF, not on vibrate. Texting and emailing during class is disruptive and is not allowed.

Textbook:

REQUIRED – Rivers, D.B. and G.A. Dahlem. 2014. The Science of Forensic Entomology. Wiley Blackwell. Oxford, UK. 1st Edition. (paperback). This book is available on the E-Learning home page and students do NOT need to purchase.

Additional readings (*available through the UF Library or on Canvas*)

Anderson, G.S. and N.R. Hobischak. 2004. Decomposition of carrion in the marine environment in British Columbia, Canada. Int. J. Legal Med. 118: 206-209.

Archer, M.S. 2003. Annual variation in arrival and departure times of carrion insects at carcasses: Implications for succession studies in forensic entomology. Aust. J. Zool. 51: 569-576.

Archer, M.S. and M.A. Elgar. 2003. Effects of decomposition on carcass attendance in a guild of carrion-breeding flies. Med. Vet. Entomol. 17: 263-271.
Beneke, M., E. Josephi and R. Zwiehoff. 2004. Neglect of the elderly: Forensic entomology cases and considerations. Forensic Sci. Int. 146S: 195-199.
Bergant, K. and S. Trdan. 2006. How reliable are thermal constants for insect development when estimated from laboratory experiments? Entomol. Exper. Applic. 120: 251-256.
Byrd, J.H. and J.F. Butler. 1996. Effects of temperature on *Cochliomyia macellaria* (Diptera: Calliphoridae) development. J. Med. Entomol. 33: 901-905.
Byrd, J.H. and J.C. Allen. 2001. The development of the black blow fly, *Phormia regina* (Meigen). Forensic Sci. Int. 120: 79-88.
Day, D.M. and J.F. Wallman. 2006. Width as an alternative measurement to length for post-mortem interval estimations using *Calliphora augur* (Diptera: Calliphoridae) larvae. Foren. Sci. Int. 159: 158-167.
Higley, L.C. and N.H. Haskell. 2001. Insect development and forensic entomology. pp. 287-302. *In* Forensic Entomology: The Utility of Arthropods in Legal Investigations. (J.H. Byrd and J.L. Castner eds.). CRC Press, Boca Raton, FL.
Lockwood, J.A., R. Kumar and D.G. Eckles. 1994. Mystery of the slaughtered horse: Solving a 400-year-old death with forensic entomology. American Entomol. Winter 1994.
Oliveira-Costa, J. and C. Antunes de Mello-Patiu. 2004. Application of Forensic Entomology to estimate the postmortem interval (PMI) in homicide investigations by the Rio de Janeiro Police Department in Brazil. Aggrawal's Internet Journal of Forensic Medicine and Toxicology. 5: 40-44.
Payne, J.A. 1965. A summer carrion study of the baby pig *Sus scrofa* Linnaeus. Ecology. 46: 592-602.
Wells, J.D. and D.W. Williams. 2007. Validation of a DNA-based method for identifying Chrysomyinae (Diptera: Calliphoridae) used in a death investigation. Int. J. Legal Med. 121: 1-8.

Additional journal articles will be assigned and posted on Canvas.

Requirements in excess of ENY4701: This course is occasionally co-taught with ENY6706. When this occurs, students registered for ENY6706 have requirements in excess of those for ENY4701 students. These include: A rigorous expectation for *Featured Creatures* article and other writing exercises, additional and more difficult questions on exams, in addition to greater expectations in all work provided for grading.

Attendance: Attendance is expected. The concepts taught in this class and the interaction with the other attendees facilitates learning. Students that miss multiple classes do not do well in this course. You cannot acquire all points in this class without being present and participating in discussions. Quizzes or other attendance incentives that will count toward your grade will be administered at the instructor's discretion should attendance diminish.

> "In general, acceptable reasons for absence from class include illness, serious family emergencies, special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligation, severe weather conditions (if 3/4 of the class is unable to make it to class due to weather, the absence is excused), religious holidays and participation in official university activities such as

music performances, athletic competition or debate. Obligations for court imposed legal obligations (i.e., jury duty, subpoena) must be excused. Other reasons may also be approved."

***Documentation is required for ALL excused absences and must be submitted to instructor within one week of absence. See the "Absence Form" for specific information.

1. Funerals: will be excused when provided with an obituary or prayer card. (P. I-17 of catalog)
2. Illness: will be excused by a doctor's completion of the attached form. Medical excuses provided by a parent or other family members are **NOT** acceptable.
3. University Sponsored Events, Military Obligation, and Religious Holidays: documentation must be submitted at least **ONE WEEK PRIOR** to the absence. The documentation must contain the exact dates the student will be gone.

Absences: Student participation in the in-class discussions will be a component of the individual written assignments for each discussion. Students with unexcused absences on dates of discussions will earn a zero on the discussion paper for that date. Students with UF-approved excused absences must provide documentation to the instructor prior to class, whenever possible such that alternative assignments can be provided.

Grading: This course does NOT utilize "minus" grades. Information on UF's grading policies can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

The grading scale for this course is as follows:

Grading scale (%): (I do not round up)

90-100	A
88-89.999	B+
80-87.999	B
78-79.999	C+
70-77.999	C
68-69.999	D+
60-67.999	D
<60	E

ENY 4701	Point Value	Total
Tests (2)	100 each	200
Quizes (2)	5 each	10
Online discussion posts (4)	5 each	20
Structural Entomology write-up	10	10
Lab write-up's (2)	10 each	20
Molecular Techniques write-up	10	10
Pig write-up	10	10
ENY and the Law (2)	10 each	20
Scientific paper write-up's (2)	40 + 40 + 20	100
Total		400

Grading is based on a percentage earned from a total point value of 400.

Grading Policy: Tests will consist of multiple choice, short answer and essay questions. Make-up tests must be requested by the student in writing and approved by the instructor scheduled **prior to the test** and are given only under special circumstances. The final test is a comprehensive examination of the topics covered in the course.

CANVAS
This course utilizes the Canvas system in E-Learning at the University of Florida to supplement in-class learning. https://elearning2.courses.ufl.edu/portal Course materials, including PowerPoints (as PDF's) and narrated lectures with associated quizzes and online discussions 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 at lectures is poor. Additionally, student grades will be posted as they are finalized.

Tests: There will be two (2) tests during this course. These consist of approximately 1/3 word bank and fill-in-the-blank, 1/3 short and 1/3 long answer essays-type questions. The instructor will provide additional feedback on these tests. Tests are property of Dr. Kaufman and students are required to return them to Dr. Kaufman prior to leaving the classroom. Additionally, no photography is allowed of these tests. Failure to adhere to these requirements will result in a score of zero being assigned to that assessment.

Quizes: There will be two (2) online quizzes provided during the first week of the class. Students are strongly advised to complete these quizzes.

Online discussion questions: Students are provided the opportunity to contribute to four (4) online discussion posts in order to earn additional points in this class. Each has a submission deadline and posts are to be completed within the Canvas portal for the class. Instructions are provided within each post and each requires not only submitting a statement, but also providing a substantive response to another students post.

Information on Required Write-ups: Students that do not attend the class when a discussion occurs or when a guest lecturer delivers their presentation CANNOT provide a write-up of that discussion or guest lecture topic and therefore will receive a score of zero for that assignment. The ONLY exception to this is if the student has a University-approved absence, most of which require prior notification and/or documentation (see Policy on Attendance, above).

Statement on the importance of writing: "Forensic" anything is about debate. We engage in debate nearly every day, however, in this course you will utilize oral and written communication skills to debate specific topics of Forensic Entomology relevance. To effectively debate (and be taken seriously), you must present your "side" of an issue using proper English. As such, 160 points of this class are related to your written skill set. I cannot stress enough the importance of sentence structure, including the use of proper grammar and syntax. Yes, your ideas are important, but your delivery of these ideas is as critical a part of our debate as are your ideas. I strongly suggest that you learn from the errors you make in early submissions, as the bar is raised with each submission.

In the past, a few students have taken issue with the shortness of these assignments. Rationale: After your college careers, you will be asked for short reports or summarizations – this approach is more common than you think and as such, we will adopt this feature. Be concise and accurate in your writing. Spend time with the paper before submitting and do not wait until the last minute to submit. These are to be considered professional documents and you should write them as such.

Formatting and Submission of Electronic Documents: All documents are to be double-spaced, in Times Font size 12 with 1-inch margins. Your name must be included in the header space, along with the topic (e.g. "Structural Write-up"). Do NOT quote components of the papers/talks/videos, etc. The information in these documents must be your own words. Page lengths differ for various write-ups, so check specifics below. All electronic document filenames **MUST** begin with the student's last name, followed by an identifiable description of the enclosed document. Examples include: Smith_Paper_Analysis_of_Beneke.doc Failure to submit in this format will result in lowered marks that increase in severity as the course progresses. Files must be saved in "*.doc" or "*.docx" format. Other formats (.wpt, .pdf, etc.) are not acceptable. **Submit all written exercises via CANVAS through the Assignments tab**. **All documents must be received by NOON on the day they are due.** Documents are docked 5 points from the earned score for each 24 h deadline missed, beginning at 12:01 pm.

Laboratory Exercises: Each student will submit two (2) laboratory reports. These are to be 1-page documents that describe your efforts in the laboratories that occur on **January 28, 2019** and **March 25, 2019**. What are your expectations with the various preservation schemes? These write-up's are due on **January 30, 2019** and **March 27, 2019**, respectively.

Molecular Techniques in Forensics: Each student will attend the lecture delivered by Ginger Clark on **February 13, 2019** and provide a 1-page write-up that must include a summary of the presentation and an extension of what you learned as it could apply to forensic entomology (including information from other aspects of this course). Student participation in the discussion also will be a component of the grade. The written document is **due on February 15, 2019**.

Pig Scene: During this course, a pig carcass will be used to illustrate the decomposition process through hands-on experiences. Students are required to observe, and collect, if necessary, samples from these carcasses. Students will "rear" maggots from the pig. Using teams, students are required to visit Dr. Kaufman's laboratory to check on their samples during the week of Feb. 20th and 27th. Points will be deducted for students that do not participate in this exercise. Students will prepare a 1-page "scene" report based on the class visitation of the pig on **February 18, 2019**. What did you observe? How does this meet with your expectations based on the course so far? Describe your views on use of this pig for a potential timeline of death. This report will be prepared and **submitted** by Noon on **February 20, 2019**.

***Entomology and the Law*:** Students will be provided a reading to review and understand PRIOR TO class on **February 27, 2019**. This reading will be discussed in class and students will provide two (2) separate 1-page write-ups. An article analysis will be submitted before **Noon on February 27** and an independent, 1-page analysis of the in-class discussion due on **Friday,**

March 01 (Noon). The article "Chapter 7: Entomology and the Law" will be placed on the Canvas web site.

Structural Forensics (bed bugs and pesticides): Each student will submit a 1-page analysis of the lecture delivered by Dr. Faith Oi on **March 11, 2019**. Some questions to ponder: What did you think of the concept of using forensics in relation to structural entomology? How realistic is this approach? Are there flaws in the approach? The written document is **due on Mar. 13, 2019**.

Scientific Paper/Testimony and Discussion: Near the conclusion of this course we will be reading scientific papers, a popular press article and, watching video testimony. These papers/videos will be posted on Canvas. Students are expected to have read or watched and understand the content such that they can participate in the *in-class* discussions. Prior to the class period where these are discussed (near the end of the semester), a *paper/testimony analysis* will be due for each of the three (3). Following the associated discussion, a *discussion synopsis* will be due for two of the three. For each paper/testimony submission, the analysis and discussion synopsis components are one page each. To facilitate this, the paper *analysis* component will be prepared and submitted before the *in-class* discussion for each of the three assignments and each submission is worth 20 pts. Completing the *paper/testimony analysis* component of the reports will aid the student in their participation in the discussion. For two of the three discussions (student choice), a *discussion synopsis* will be due before Noon of the day following the completion of the discussion.

As stated above, students will prepare the reviews of the three (3) assigned scientific papers using the format and procedures provided. This *Paper/testimony analysis* component must be uploaded to Canvas appropriate assignment sector (1, 2 or 3, date dependent) **prior** to the appropriate class period. The *discussion synopsis* must be uploaded into the appropriate Canvas Assignment sector **by Noon of the day following the discussion**. Submissions received after the listed due date and time will be penalized 5 points for each 24 hr. Reports are unique documents and overt similarities between reports will receive poor marks and are subject to referral to Judicial Affairs. An overview of how to prepare these reports "*How to write summaries.docx*" has been posted on Canvas. Student scores will reflect their written analysis, grammar, depth of thought AND their participation in the classroom.

Tentative course calendar:

Lect	Date	Topic
1	Jan. 07	What is Forensic Entomology (Chapter 1, 2 and Beneke article) Accidental vs. Intentional food contamination (Chapter 3.1 – 3.5) **Quiz 1 (due before Jan. 11, Noon)**
2	Jan. 09	Conflict in Science: Discussion of *Myth's Busted* and *Myth's Busted Rebuttal* Articles (Read articles before class). **Quiz 2 (Before class)**
3	Jan. 14	Role of insects in decomposition (Chapters 4 & 5)
4	Jan. 16	No Class - **Online discussion posts due**
	Jan. 21	Dr. Martin Luther King Jr. Holiday – No Class
5	Jan. 23	Role of insects in decomposition
6	Jan. 28	Encounters with the flesh eaters: (Appendix 1 & II) Animal contact safety training **Lab 1 write-up due Noon – Wed. Jan. 30**
7	Jan. 30	Insect life cycles. (Chapter 6) Animal decomposition (Chapter 10)
8	Feb. 04	Animal decomposition, Insect succession (Chapter 7 & 11)
9	Feb. 06	Estimating post-mortem interval (Chapter 12)
10	Feb. 11	PMI – Part 2
11	Feb. 13	Molecular Techniques in Forensics. Guest lecturer: Ginger Clark (Chapter 15) **Molecular techniques write-up due Noon Friday, Feb. 15**
12	**Feb. 18**	Field Trip: Collection, processing and rearing your own samples. Meet at the pig..., then in Room 2218 **Pig scene write-up due Noon - Wednesday Feb. 20**
13	Feb. 20	Field Trip - Specimen recovery at a "crime scene" – Guest Lecturer Dr. Sue Gruener. Meet at the pig…. (Chapter 8). You can collect, as well….
14	Feb. 25	**Test 1**
15	Feb. 27	Directed discussion of *Entomology and the Law* Insects in abuse cases. (Chapter 14) – Two part submission: **Pre-class article analysis due before Noon, Feb. 27 and Post-class discussion analysis due before Noon – Friday Mar 01**
	Mar. 04-08	Spring Break – No Class
16	Mar 11	Struct. Entomology: Bed bugs & pesticide exposure - Guest Lecturer: Dr. Faith Oi **Struct/Bedbug/Pesticide exposure write-up due Noon - Wednesday Mar. 13** Structural Entomology – Structural Entomology in practice.
17	Mar. 13	Field Trip – Dry decay evaluation. Meet at the pig first. Calculating PMI - Modeling. (Chapter 9 & 12) (Back in 2218). Insects in crime solving and legal proceedings.
18	Mar 18	Crime scene and courtroom experiences - Guest Lecturer: Dr. Sue Gruener
19	Mar 20	Insects in crime solving and legal proceedings (cont.).
20	Mar. 25	Determination of your earlier collections. **Lab 2 write-up due Noon – Wednesday Mar. 27**
21	Mar. 27	Role of water, drugs and toxins. Aquatic insects in forensics.
22	Apr. 01	Examples from the past: Case Studies. Scenarios. You solve the riddle. **Online discussion Case 1 open, Due April 03**
23	Apr. 03	Examples from the past: Case Studies. Scenarios. You solve the riddle. **Online discussion Case 2 open, Due April 05**
24	Apr. 08	Case studies. More scenarios. **Online discussion Case 3 open, Due April 10**
25	Apr. 10	Directed discussion, See **"Scientific Paper/Testimony and Discussion" (SP/T&D) above for due dates.**
26	Apr. 15	Directed discussion, See **SP/T&D above for due dates.**
27	Apr. 17	Directed discussion, **See SP/T&D above for due dates.**
28	**Apr. 22**	**Test 2**
29	Apr. 24	Current trends in forensic entomology:

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

Academic Honesty, Software Use, Campus Helping Resources, Services for Students with Disabilities

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/process/student-conduct-honor-code.

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

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/**

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/**

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.

0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**

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

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.