

ENTO 850 (1 credit)
Forensic Insect Morphology Syllabus
Summer 2022

INSTRUCTOR

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Office Hours: The best way to reach me is by email. Expect a response within 24 hours on weekdays or 48 hours on weekends (but often much sooner). If you call, leave a message and I will get back with you as soon as possible.

Course Description: This course is a comparative study of major insect external structures, emphasizing the various modifications that are important in the success of insects. It will introduce students to the morphological (structure and function) features of insects, both in general as well as highlighting some major orders of forensic importance and the characteristics that define and differentiate the families within these orders. Identifying families and species of insects collected at a crime scene can be essential in determining accurate post-mortem interval (PMI).

Course objectives:

1. Define key terms related to insect morphology.
2. Describe the structure of basic external insect body segmentation and appendages.
3. Explain the function of different insect external structures.
4. Identify and describe the external morphological variations between insect taxa.
5. Identify taxonomic characteristics of forensically important insects.
6. Apply course material to real world criminal investigations.

INSTRUCTIONAL METHOD

Canvas will be used for delivery of all materials pertinent to this course (lectures, asynchronous discussions, videos, readings, and assignments). Power Point presentations will be used to deliver lectures, which will include text and images and will be strengthened by narration to emphasize key points. In addition, readings and videos will be assigned. ***Each student is expected to watch all lectures, complete all reading assignments, and view all supplementary materials (videos and/or publications) for each module.***

Because this is an asynchronous class, my role as instructor will be to answer any questions you have about the course or the assignments and begin discussions. Within the discussion board, I may add comments, but primarily would like you and your classmates to guide the discussion with your own thoughts and ideas. I check email frequently and usually get back to students within 24 hours on weekdays or 48 hours if over a weekend.

TEXTBOOKS AND RESOURCES

Students will be required to read a variety of textbook chapters, publications, or other resources for this course. PDF versions or links for these materials will be within our Canvas course.

Required textbooks (PDF versions available free in Canvas):

Insect Morphology and Phylogeny by Rolf Beutel.
The Insects: Structure and Function by R. F. Chapman

Other resources/chapters as assigned.

Recommended textbooks (PDF versions available free in Canvas):

Principles of Insect Morphology by R. E. Snodgrass

STUDENT ASSIGNMENTS

Detailed instructions about all assignments are on Canvas.

Introductory Discussion: Students will briefly introduce themselves on the discussion board to better get to know the instructor and their classmates.

Forensic Insect Morphology Profiles: Students will complete **two** “fact sheets” or “profiles” on a forensic insect of their choice. Each profile will require one or more photos/illustrations of a chosen insect, labelled with specific morphological characteristics that are key to identifying and differentiating it from other similar insects (i.e., a house fly vs. a flesh fly). Instructions and a template will be provided in Canvas.

Insect Morphology Journal Critique: Students will choose a topically related scholarly research paper/article and write a 3–4-page summary and critique for that article. Please see separate handout for more details about this assignment.

For assistance in obtaining reference materials from the library here at the University of Nebraska, contact the Entomology Librarian, Leslie Delserone, at C.Y. Thompson Library, East Campus, UNL, Lincoln, NE 68583- 0717 (402) 472-6297 Email: ldelserone2@unl.edu

Quizzes/Exams: There will seven quizzes/exams in the course, including six short weekly quizzes worth 25 points each and a comprehensive final worth 100 points. All will be closed book, with questions being multiple choice, matching, or true/false. **All lecture and supplemental material (videos and publications) are fair game for the exams.**

POINT BREAKDOWN

| Assessment | Quantity | Points Per | Total Points |
|--------------------------|----------|------------|-------------------|
| Forensic Insect Profiles | 2 | 25 | 50 |
| Journal Article Critique | 1 | 30 | 30 |
| Weekly Quizzes | 6 | 25 | 150 |
| Final exam | 1 | 100 | 100 |
| Total | | | 330 points |

LETTER GRADE SCALE

| | | | | |
|-------------|------------|------------|------------|----------|
| 100 – 98 A+ | 89 - 87 B+ | 79 - 77 C+ | 69 – 67 D+ | 59 – 0 F |
| 97 – 94 A | 86 - 83 B | 76 – 73 C | 66 – 63 D | |
| 93 – 90 A- | 82 - 80 B- | 72 – 70 C- | 62 – 60 D- | |

CLASS SCHEDULE

| Week | Topic | Assignments due |
|------------------------|--|---|
| 1 (May 16-20) | Intro to Insect Morphology Insect Integument and Molting Insect Body Segmentation Part 1 (Quiz 1 opens) | Read Chapman Chapter 16 Read Gullan Chapter 2, pgs. 27-33 Introductory Discussion due May 20 |
| 2 (May 23-27) | Insect Body Segmentation Part 2 Insect Head and Appendages Part 1 Insect Head and Appendages Part 2 Thoracic Morphology and Locomotion (Quiz 1 closes) (Quiz 2 opens) | Read Chapman Chapter 1, 2, 7, & 8 Read Gullan Chapter 2, pgs. 33-48 |
| 3 (May 30- June 3) | Wing Anatomy and Flight The Abdomen and Insect Reproductive Structures The Sense Organs (Quiz 2 closes) (Quiz 3 opens) | Read Chapman Chapter 9 & 11; 22-26 Read Gullan Chapter 2, pgs. 48-55 |
| 4 (June 6-10) | Diptera Morphology: <ul style="list-style-type: none"> • Calliphoridae • Sarcophagidae (Quiz 3 closes) (Quiz 4 opens) | Read Beutel Chapter 6.35 (Diptera) Insect Profile 1 due June 10 |
| 5 (June 13-17) | Diptera Morphology: <ul style="list-style-type: none"> • Muscidae • Piophilidae Coleoptera Morphology: <ul style="list-style-type: none"> • Silphidae (Quiz 4 closes) (Quiz 5 opens) | Read Beutel Chapter 6.29 (Coleoptera) |
| 6 (June 20-24) | Coleoptera Morphology: <ul style="list-style-type: none"> • Scarabaeidae • Staphylinidae • Trogidae (Quiz 5 closes) (Quiz 6 opens) | Insect Profile 2 due June 24 |
| 7 (June 27- July 1) | Coleoptera Morphology: <ul style="list-style-type: none"> • Dermestidae Morphological Importance of Insects in Forensic Investigations (Quiz 6 closes) (Final exam opens) | Journal Article Critique due July 1 |
| 8 (July 4-8) | (Final exam closes) | |

COURSE POLICIES AND RESOURCES

Visit the link below for UNL policies on Attendance, Academic Honesty, Students with Disabilities, Mental Health and Well Being, Emergency Procedures, Diversity and Inclusion, Title IX, and Final Exam Schedules.

<https://executivevc.unl.edu/academic-excellence/teaching-resources/course-policies>