

**Biology 4414:001, T01, T02, T03, T05 – Forensic Entomology- Spring 2024**  
**Lecture M-W 11:00-12:15 WSB 107, DR 111, UV B110, EP B111, or Virtual**  
**Lab M 1:30-3:10 WSB 109 or Virtual**  
**Syllabus**

**Instructor:**

Dr. Chris M. Ritzi

Office: Warnock Science Building – 217

Phone: 837- 8420

Email: [critzi@sulross.edu](mailto:critzi@sulross.edu)

Office hours: MW 9-11, TR 3-5, or by appt.

**Class Website:** <http://sulross.blackboard.com> & <http://faculty.sulross.edu/critzi/>

**Text:** Byrd, J. H. and J. L. Castner. 2012. Forensic Entomology: An Introduction. 2<sup>nd</sup> edition. Wiley Blackwell. New York.

Haskell, N. H. and R. E. Willians, Eds. 2008. Entomology and Death: A Procedural Guide, 2<sup>nd</sup> Edition. Ed. Forensic Entomology Partners, Clemson, SC, USA.

**Course Description:** This course will study the various insects associated with forensic investigations. It will cover the use of insect related evidence in legal investigations, and how that evidence can be collected, analyzed, and used in a court of law. Students will learn to identify and understand the life cycles, morphology, and behavior of flies and beetles associated with forensic investigations. Lectures will emphasize the major aspects of forensic entomology, from calculating post mortum, the different types of data that can be obtained from insects, the effects of the environment on forensic entomology, and other aspects of the field. Laboratory studies will emphasize taxonomy and identification, as well as collection techniques.

**Student Learning Outcomes**

The graduating biology student graduating with a BS in Biology should be able to:

- SLO1 The student will be able to demonstrate an understanding of basic biological concepts, including but not limited to evolution via natural selection, cell theory, and the role and function of DNA.
- SLO2 The student will be able to demonstrate utilization of various field techniques toward addressing scientific questions in the specific discipline. These field techniques can include, but are not limited to, plant collection and processing, various animal collection techniques, ecological surveying and sampling, and biodiversity indexing.
- SLO3 The student will be able to use biological instrumentation to solve biological problems using standard observational strategies.
- SLO4 The student will develop writing skills by summarizing and critiquing recent relevant biological literature.

**Course Learning Objectives:**

- 1) Students will identify the basic insects of forensic importance.

- 2) Students will be able to explain how insects are used during legal investigations.
- 3) Students will be familiar with the methods used to collect insects from a crime scene.
- 4) Students will assess the stage of insects discovered to estimate time of death.
- 5) Students will understand why and when insects become valuable evidence.

**Marketable Skills:** A student getting a degree in the Biological sciences would be expected to acquire the following marketable skills by graduation.

- 1) Students will be able to organize, analyze, and interpret data.
- 2) Students will be proficient at using presentation software.
- 3) Students will acquire experience in managing time and meeting deadlines.
- 4) Students will gain the ability to speak effectively and write concisely about scientific topics.
- 5) Students will acquire experience and guidance in the development of professional email correspondence.

**Grading:** Your grade will be assigned based on the percentage of points you get out of a total possible 800 points. (3-100pt exams, 150 pt Forensic Case Study, 5-10 pt quizzes, 100 pts Participation and Attendance, 200 pts lab exams (2-100 pt lab practicals))

**Tests:** There will be a total of 4 exams, each worth 100 points. Lab practicals will be offered as Midterm and final lab exams, as well, also worth 100 points each. If you miss an exam and have a legitimate excuse, contact me within 24 hours of the test and we will arrange a make-up test. If you do not contact me within 24 hours, you will receive a zero on that exam.

**Attendance:** Students missing 20% of lectures (9 lectures) OR labs (3 labs) may be dropped from the class per the SRSU catalog. Any student dropped for excessive absences will receive an F for the course grade. Please notify your instructor BEFORE missing class for authorized activities, death in the family, or illness. Exams missed for any reason must be made up within one week of the originally scheduled date. **REGARDLESS OF WHY AN ABSENCE OCCURS, YOU MAY BE GIVEN AN F FOR THE COURSE GRADE IF YOU ACCUMULATE NINE ABSENCES.**

**Lecture courtesy:** The general rules of classroom etiquette are below.

- 1) Please do not talk to others in class while the instructor is lecturing. If you have a question, ASK THE INSTRUCTOR! That's what I'm here for.
- 2) No eating, chewing, dipping, etc.
- 3) Please turn cell phones and pagers to silent while in class. They are disruptive to the entire class, and detract from learning.

**Students with disabilities will be provided reasonable accommodations. If you would like to request such accommodations because of physical, mental, or learning disability, please contact the ADA Coordinator for Program Accessibility at 837-8203, FH 112.**

## TENTATIVE LECTURE OUTLINE

DATE	LECTURE TOPIC
Jan 17	Introduction & History of forensic entomology
Jan 22	Use of insects in investigations
Jan 24	Forensically important flies
Jan 29	Forensically important flies cont.
Jan 31	Forensically important beetles
Feb 5	Forensically important beetles cont.
Feb 7	<b>Exam I</b>
Feb 12	Life cycles (Flies and Beetles)
Feb 14	Ecology of forensically important flies
Feb 19	Ecology of forensically important flies cont.
Feb 21	Ecology of forensically important beetles
Feb 26	Ecology of forensically important beetles cont.
Feb 28	Natural insect succession
Mar 4	Environment and insect succession
Mar 6	Aquatic insects in forensic investigations
Mar 11	Spring Break
Mar 13	Spring Break
Mar 18	<b>Exam II</b>
Mar 20	Sampling at the crime scene
Mar 25	Breeding specimens from the crime scene
Mar 27	Calculating post mortum interval
Apr 1	Forensic entomologists in court
Apr 3	Forensic entomologists in court cont.
Apr 8	Soil environment and forensic entomology
Apr 10	Entomotoxicology: drug and toxin detection in insects
Apr 15	Molecular methods in forensic entomology
Apr 17	Insect colonization of buried remains
Apr 22	Use of insect olfaction
Apr 24	Effects of climate change on forensic entomology
Apr 29	Entomological alteration of bloodstain evidence
May 1	Forensic implications of Myiasis
May 2	Dead Day
May 7(T) 10:15 am	<b>Final exam</b> for MW 11:00-12:15

Note – This outline is subject to change for reasons of course interest, time constraint, or instructor whim. The exams will be administered on the dates given, unless material relevant for a given exam has not been covered. Under such cases, an exam may be moved a class period or two to aid in the clarity and understanding of the material.

Graduate Credit – Graduate students will be required to do an independent mini-project associated with forensic entomology. All mini-projects will need to be vetted with the professor by the end of February. They should consist of a field or laboratory investigation of an aspect of forensic entomology. Data is to be collected and analyzed

during the term, and an oral presentation is to be delivered to the class by the end of the semester. The write up and the presentation will each count toward an additional 100 points each toward the final grade.

### FORENSIC ENTOMOLOGY LABORATORY SCHEDULE

<b>DATE</b>	<b>LABORATORY</b>
Jan 22	No Lab - Prep
Jan 29	Adult Flies (Muscidae)
Jan 5	Adult Flies II
Feb 12	Maggots
Feb 19	Adult Beetles (Coleoptera)
Feb 26	Larval Beetles (Coleoptera)
Mar 4	Midterm Lab Practical
Mar 11	Spring Break
Mar 18	Field techniques
Mar 25	Collecting insects from the crime scene
Apr 1	Breeding larva
Apr 8	Calculating post mortum
Apr 15	Class data collection
Apr 22	Statement of Witness
Apr 29	Final Lab Practical

We might combine or collapse one or two of these labs to conduct more field and outdoor learning activities. Please be aware that this lab schedule is subject to change based on specimen availability, weather, and class interest.

**SRSU Disability Services:** SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director at 432-837-8203 or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu) or contact Alejandra Valdez, at 830-758-5006 or email [alejandra.valdez@sulross.edu](mailto:alejandra.valdez@sulross.edu). Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

**SRSU Distance Education Statement:** Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

**Libraries:** The Bryan Wildenthal Memorial Library in Alpine offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, [library.sulross.edu](http://library.sulross.edu). Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email ([srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu)), or phone (432-837-8123).

**Academic Integrity:** Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources *unless permission is expressly given* for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

**Classroom Climate of Respect:** Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree

without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

**Supportive Statement:** I aim to create a learning environment for my students that supports various perspectives and experiences. I understand that the recent pandemic, economic disparity, and health concerns, or even unexpected life events may impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.