

**Biology 5310 – Applied Entomology Syllabus**  
**Spring 2023: TR 11:00 – 12:15pm WSB 107**

**Instructor:** Dr. Chris M. Ritzi

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

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

**Text:** Thacker, J.R.M. 2002. An Introduction to Arthropod Pest Control. Cambridge University Press. (ISBN 0-521-56787-4). You will be also be responsible for either picking up or making a copy of each day's materials from Blackboard, as well as supplying supplemental materials. A large part of this course will be presenting outside articles, so be prepared for some library hunting.

**Course Description:** In this course we will read and discuss a variety of papers and topics that helped to shape the world of applied entomology. The goal for each class is to understand what theory or idea is being presented at the time, and how it is applied in the world around us. It is everyone's responsibility to read for each class period, and to be prepared to discuss the topics. Since this is a graduate class, everyone should be prepared to discuss every day of class during presentation weeks. Additionally, each student will be designated as a "moderator" at least once each particular paper discussions. Discussions are meant to be insightful and intelligent, although they can also be passionate and from the heart if it is appropriate (ie. something you have strong personal feelings about).

**Program Learning Outcomes**

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

- 1) Understanding and implementation of scientific methodology.
- 2) Utilization of field techniques toward addressing scientific questions.
- 3) Be able to utilize statistics toward the analysis of data within the discipline.
- 4) Be able to effectively disseminate scientific findings using both written and oral communication.

**Course Objectives:** Over the course of this class, I hope the following objectives will be met:

1. To instill a sense of awe and excitement about insects and other arthropods.
2. To train the student in the skills required by a professional research entomologist, and understand the various ways in which insects can be controlled.
3. To implement the scientific method, and approaches used in the development of theory in entomology.
4. To analyze research papers for effectiveness and efficiency.

**Marketable Skills:**

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.

**Tests:** There will be 2 tests over the course of the class, a midterm and a final. Each exam will be worth 100 points.

**Grading:** You will be assessed 400 points based on exams, presentations, abstracts, participation, and preparedness for each class period. Beyond the exams (100 points each), additional points for the class will come about from papers and presentations given over the term. Each oral paper presentation (4 for grads) will be worth 25 points each. Additionally, to ensure that everyone has been reading papers beyond those covered in class, short written abstracts (worth 25 points) will be required over 2 additional papers (instructions to follow). The remainder of the grade will be based on participation and preparedness for class discussions.

**Attendance:** Students missing 20% of lectures (6 lectures) shall be dropped from the class with an F per the SRSU catalog. Please notify your instructor BEFORE missing class for authorized activities, death in the family, or illness.

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

- 1) This is a graduate/advanced class, so feel free to talk about the material as a group. This doesn't mean you should talk about other things during the class.
- 2) No eating, chewing, dipping, etc. (unless it is a brown bag session)
- 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.**

<b>Schedule of Topics</b>	<b>Week of</b>
Introduction	Jan 19
Fundamentals of Entomology & Insects	Jan 24-26
History	Jan 31-Feb 2
History	Feb 7-9
Botanical Pesticides	Feb 14-16
Paper Discussions	Feb 21-23
Synthetic Chemical Pesticides	Feb 28-Mar 2
Paper Discussion	Mar 7-9

Spring Break – No Classes	Mar 14-16
MidTerm	Mar 21-23
Biological Control	Mar 28-30
Paper Discussions	Apr 4-6
Genetic/Endocrine Control	Apr 11-13
Paper Discussions	Apr 18-20
Cultural Control	Apr 25-27
IPM	May 2-4
Paper Discussion	May 9
Dead Day	May 10
Final Exam	<b>Monday</b> May 15 <sup>th</sup> @ 10:15

#### Topics to Include

##### Principles and Strategies of Insect Control:

- Ecological Principles
  - Sampling
  - Yield/Loss Assessment
- Control Strategies
  - Insecticides
  - Host Plant Resistance
  - Natural Enemies
  - Cultural Controls
  - Interference
  - Quarantine & legislation
  - IPM

##### Pests and Pest Management of selected crops (as time permits)

- Cotton
- Orchards
- Corn
- Small grains and Legumes
- Vegetables
- Ornamentals & Households
- Medical-Veterinary

#### **Abstracts of Journal Articles (Oral and Written)**

##### Objectives:

This assignment is given so that the student will complete the following course objectives:

- a) Obtain and appreciate the understanding of the scope of applied entomology

- and its subdisciplines.
- b) Learn the basic entomological terminologies and vocabulary necessary to enter the entomology literature with confidence.
  - c) Learn how to use the entomology literature.

#### Assignments:

Each graduate student will be required to read one journal article in each of the following areas (undergraduates need to pick 2 of the 4):

1. Chemical control
2. Biological Control
3. Cultural control
4. IPM

#### Procedures:

1. Peruse the entomology journals in the invertebrate collection or at the library.
2. Read the article of your choice looking for the following:
  - a. What is the investigator trying to prove/demonstrate? Etc.
  - b. What equipment and/or special techniques were used?
  - c. What were the basic findings of the research?
  - d. Was the experimental design appropriate to test the objectives? What flaws in design do you see (How would you do this project differently?)
  - e. Was the data presentation (tables, figures, etc.) clear and understandable (do they “stand by themselves” as information?)
3. The articles need to be turned in the day before you present them, so that others in the class have the opportunity to read them as well. That being said, try to be kind to your fellow students (and professor) and do not pick monographs to read.
4. Orally present the paper to the rest of the class. Conduct the presentation as though it was your own work (ie. thesis defense behavior and attention to detail) AND be prepared to discuss the strengths/weaknesses of the work.

#### Written summaries

In addition to the oral presentations, graduate students will be responsible for turning in 2 additional papers as written summaries. Basically follow the same approach as above, but write out the “presentation”. Follow the following format, turning in one summary at the time of each major Exam (Midterm and Final).

- Applied Entomology                      Name:  
Author's name, Date of article  
Title of article  
Journal name, volume (issue number), pages
1. Area of article
  2. Equipment/techniques used – brief description of research methods
  3. Basic problem/question investigator attempted to solve
  4. Basic conclusions, any special comments on quality of technique, data, style, etc.

**SRSU Disability Services:** Sul Ross State University (SRSU) is committed to equal access in compliance with 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 Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and

we'll get back to you as soon as we can during working hours), or email [rebecca.wren@sulross.edu](mailto:rebecca.wren@sulross.edu). Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, SUI 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. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: 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.

**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.

**Diversity Statement:** "I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could 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 an inclusive 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.”