

Biology 5324.001– Techniques of Scientific Research Syllabus
Fall 2025: TR 9:30 – 10:45 WSB 107

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Office hours: M 3:30-5, TR 3:30-4:30, W 2:00-5:00 PM., or appt.

Class Website: <https://www.sulross.edu/bb/>

Text: CBE Style Manual.

Course Description: In this course we will introduce you to the world of graduate school. Toward this goal, you will learn about the department and program that you belong to, the type of research being conducted, and what it means to be a graduate student. You will be expected to choose a Major advisor and develop your degree plan. You will also be encouraged to begin developing your thesis topic, with the goal of starting your proposal during this class. Toward this goal, one of your main semester projects will be to write a draft proposal, and make a practice presentation of your proposal presentation to the class. We will cover research design and other aspects on becoming a successful graduate student. Finally, we will use the proposal process as a way to become familiar with scientific writing and the traditional journal manuscript editing process.

Student 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 Learning Objectives:

- 1) Demonstrate scientific writing skills
- 2) Organize oneself during the entrance of graduate school by choosing an advisor and developing a degree plan.
- 3) Develop professional presentation skills.
- 4) Work toward planning organizing and developing a thesis topic.

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 not be any tests throughout the course, as such. Instead, the course will be graded on participation, preparedness, and the presentation of a class project toward the end of term. The project is to be a 15-20 minute presentation about your thesis topic. You will also draft a rough copy of your proposal during this course, to start you and your advisor toward getting your project up and off the ground.

Grading: You will be assessed 200 points based on your participation and preparedness for each week's class, as well as 100 points on your presentation. The presentation grade will be determined by myself and your peers (in part). Your written proposal will be also be worth 100 pts after original writing and revision. Finally, there are 100 points built into various assignments, such as a library assignment, degree plan, etc.

Attendance: Students missing 20% of lectures (6 class periods) 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. If you are feeling ill, have a fever of 100 F, or am exhibiting any symptoms of the current COVID infection, please stay home and self-quarantine until you are either tested and cleared, or have been symptom free for over 10 days. As this class will be offered on-line as well as in person, attendance and participation online is the equivalent of in-class participation. Whether you are connecting to the class during the scheduled class time in zoom or viewing the recordings of class in Blackboard and posting in the discussion forums, activity each week is required.

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

- 1) This is a graduate class, so feel free to talk about the material as a group. This doesn't mean you should talk about other things for the hour.
- 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.
- 4) For remote connections, please attend class as professionally as one would do in person (ie. Wearing clothes, not being disruptive or disrespectful to your peers, etc.)
- 5) If attending class in person, please wear you mask at all times and maintain social distancing. Failure to do so will result with being asked to leave the class and count as an absence for the day.

Tentative Lecture Outline

Date	Lecture topic
Aug 26	Introduction
Aug 28	Welcome to Graduate School, now what?
Sept 2	Your faculty and possible advisors
Sept 4	Research at Sul Ross
Sept 9	What are your degree options?
Sept 11	Resources as a grad student

Sept 16	Degree plans and Committees
Sept 18	Library resources
Sept 23	Scientific methodology
Sept 25	Discussion of sample field methods
Sept 30	Discussion of sample laboratory methods
Oct 2	Degree Plan Due
Oct 7	Statistics are not an option
Oct 9	Thesis time line
Oct 14	Preparing for Comps, they are not a rubber stamp...
Oct 16	Proposal Draft Due
Oct 21	Editorial Manuscript reviewing
Oct 23	Proofing and marks
Oct 28	CBE style manual
Oct 30	Punctuation and abbreviations
Nov 4	Scientific names, numbers, and measurements
Nov 6	Word usage: confusing and often misused and misspelled words
Nov 11	Grants
Nov 13	Curriculum Vitae
Nov 18	Professional Meetings
Nov 20	Proposal Presentations
Nov 25	Proposal Presentations
Nov 27	Nov 26-28 – Thanksgiving Holidays – No Class
Dec 2	What do I do after this? Life after grad school
Dec 4	Dead Day
Dec 8 – 8am	Final Exam for TR 9:30-10:45 – Proposal revision due

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.

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 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 counseling@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, 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. 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), 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.

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.