

BIOL 4990/5990 (Research)
Fall 2018

PROFESSOR: Dr. Teresa Golden

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OFFICE HOURS: Mon 11-12pm & 3-5pm, Tues 9-11:30am & 4-5pm, Thurs 9-11am, Fri 11-12:30pm, and by appointment.

-Research can be very busy and require lots of support; please stop by my office, call or email me anytime you have questions!-

Credit Hours: Variable (*usually 1, 2, 3 or 4 hours*). Please confirm that you are enrolled in the correct number of credit hours.

Lecture: none scheduled, but group or project meetings may be scheduled as needed.

COURSE OBJECTIVES

-The objective of this class is for a student to gain additional insight into science (especially biology and chemistry) and the process of science by conducting independent research.

-In addition to laboratory research, the student will also perform literature searches as needed, before and during the execution of the laboratory experiments. A research plan will be developed with the supervising professor. Research projects must involve the exploration of novel topics in any area of biology pending the approval of the supervising professor. A **research report** consisting of a written summary of the findings of the research project (experimental and literature) must be submitted to the professor at the conclusion of the project along with a **completed laboratory notebook**. Some students may also have the opportunity to present their data at regional or national meetings. Even if the student has assembled the data for a public presentation, a final research report is necessary to maintain a record of that student's progress and as a reference for future students to build upon. The research report should be submitted both in a hard-copy form and in digital form, preferably e-mailed to the instructor. Even if students are assigned to research teams, each student is responsible for their individual research report contribution. All references must be cited appropriately. Please note that plagiarism will not be tolerated and could result in failure of the course.

EQUITY AND NON-DISCRIMINATION STATEMENT

Southeastern Oklahoma State University, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, gender identity, or status as a veteran in any of its policies, practices, procedures, or programs. This includes, but is not limited to: admissions, employment, financial aid, and educational services. Inquiries regarding non-discrimination and equity policies may be directed to: Michael Davis, Director of Compliance and Safety & Title IX Coordinator, (580) 745-3090, or mdavis@se.edu.

DISABILITY ACCOMMODATIONS

Any student needing special accommodations due to a disability should contact the Office of Compliance and Safety, Administration Building, Suite 311 or call (580) 745-3090 (TDD# 745-2704). It

is the responsibility of each student who anticipates or experiences barriers to their academic experience to make an official request for disability related accommodations in a timely manner.

COUNSELING CENTER

Any student experiencing mental or emotional issues who desires free, confidential, clinical counseling is encouraged to contact the SE Counseling Center at (580) 745-2988 to schedule an appointment during normal working hours Monday-Friday, 8:00AM to 5:00PM. For after-hours mental health emergencies, please call SE Campus Police at (580) 745-2911 or the Mental Health Crisis Hotline at 1- (800) 522-1090.

COURSE OUTLINE:

-RESEARCH TIMETABLE AND GENERAL GUIDELINES-

The plan of research shall be developed and completed by the end of the third week of the semester, in consultation with the supervising professor. Research must be performed in an area approved by the assigned professor. Relevant research articles or background information will be provided by the supervising professor, or an initial literature search will be performed by the student during the first two weeks of the semester, depending on the project. Additional searches may be required as the research progresses.

By the nature of this course, the student is required to work independently at times in their experiments. However, all experiments must be pre-approved. The student must seek permission to use any equipment or supplies so that they do not interfere with any regularly scheduled courses or other department research. The student will abide by all laboratory safety rules and standard operating procedures. These include rules regarding biohazard containment and intellectual property.

At the end of the laboratory research, the student will schedule an appointment with the supervisor to turn in all equipment and reagents, and review the disposition of all chemicals, strains, data files, notebooks, etc. Data files and digital reports should be backed-up in multiple locations, including the laboratory computers and your campus account. A CD or other media recording of your final report, data and graphs must be deposited before a grade will be provided. If you are working with a partner on a project, you should both make copies of data as appropriate.

The student is required to perform a minimum of 2 hours of actual research per week per hour of research credit. Subject to approval by the supervisor, some of these hours may include research calculations or data analysis, or report preparations on research conducted at an earlier time, such as during the summer research programs.

A set weekly schedule must be submitted to and approved by the professor. The student will record the actual hours worked in the lab notebook, to be submitted to the supervisor for inspection periodically. On any day when research hours are worked, make an entry with the date, times begun and ended, and a brief description of what was done, plus any protocols used or data generated. If the daily activity included much data analysis or literature searching or a similar activity, do state this.

Due to the independent nature of research and busy semesters, in addition to the above notebook entries, I would also like a brief summary of research activities, findings, and hours worked e-mailed to me every 4 weeks at a minimum. Include dates and times worked, brief statement of

what was done, but do not include lengthy protocols unless otherwise requested. If an interesting graph or milestone is reached, do include this, possibly as an attachment. Students may also be asked to prepare interim reports or a mid-term summary report, or at least an outline of their progress to date.

A draft of the research report, laboratory notebook and related data must be submitted during the final week of class during the semester, to allow time for review and discussion prior to the final grade assignment. **If you are unsure of report format or content, ask questions and start the report earlier, to give time for more feedback and revisions.**

GRADING:

A letter grade will be assigned to the student's research project. The professor shall assign a letter based on (1) the student's performance in the research project which includes: attendance, the ability to complete tasks whether boring or exciting, and ability to support others in the lab, (2) the difficulty of the project relative to the experience level of the student, (3) organization of the research notebook, and (4) the written report. The student is required to meet with the supervising professor during finals week to discuss the project's conclusions. The student may be required to give a brief oral presentation of their findings at this time or earlier.

Failure to complete the required minimum number of research hours, failure to submit a satisfactory written report, or failure to complete the required lab check-out with the supervisor will result in the letter grade of "I" being awarded at the end of the semester, if the student has made arrangements with the instructor to complete the work during the next semester. The grade will change to an appropriate letter grade after one semester or upon completion of the missing work. Blatant disregard of the above requirements by a student will result in a grade reduction or a grade of 'F' rather than an 'I'.

The grading scale is reflected below, but due to the nature of the work most official 'grading' will occur at the end of the semester. Please contact me directly if you are unsure of your progress towards the requirements listed above. This course requires a fair amount of independent initiative and includes the expectation that students will initiate meetings with the Instructor/other lab members and keep up with the work at hand.

A = 90% – 100%

B = 80% – 89%

C = 70% – 79%

D = 60% – 69%

F = below 60%

Based on their level of experience, expectations for graduate students enrolled in research will be higher than that for undergraduates. Graduate students are expected to do more background literature research and have more direct input into the project. If there is a reasonable opportunity to do so during the course of the semester graduate students will be required to present research findings and attend research conferences. Ideally, most graduate students will have independent credit reflected by a poster or lecture presentation and/or a publication.

WITHDRAWAL FROM THE COURSE

-If you stop coming to the lab or updating me on your progress, you are **NOT** automatically withdrawn from the class and will receive an **F** unless you officially withdraw from the class.