

Biology II Laboratory (BIOL 1625)

Semester: Spring 2020

Location: LSB 108, 111, 114 or 119

I. Course Objectives. This laboratory course provides an authentic research experience to facilitate learning the entire process of science. BIOL 1625 will give you experience with hypothesis-driven science (experimentation), whereas BIOL 1615 is largely focused on discovery-based (descriptive) science. You will make progress towards the following learning objectives:

Biology Department learning outcomes	IDEA Center learning objectives
1. Practice the process of science (including using quantitative reasoning).	<ul style="list-style-type: none">• Develop specific skills, competencies, and points of view needed by professionals in the field most closely related to this course (E)• Learn appropriate methods for collecting, analyzing, and interpreting numerical information (I)• Learn to apply course material to improve thinking, problem solving, and decisions (I)
2. Collaborate with others and work as a team.	<ul style="list-style-type: none">• Acquire skills in working with others as a member of a team (E)
3. Communicate interpretations to scientists and the general public.	<ul style="list-style-type: none">• Develop skill in expressing oneself orally or in writing (E)• Learn how to find, evaluate, and use resources to explore a topic in depth (I)

II. Assessing Course Objectives

- **Weekly online pre-lab quizzes (30% of grade).** You will read documents available in Canvas and answer a few questions in Canvas regarding this background information before coming to lab each week. The quiz will be available online the Friday before the lab and will close an hour before class starts (to allow your TA time to view quiz statistics before teaching). The quizzes are not timed, and you are allowed only one attempt. We will go over the correct answers together at the beginning of class. Canvas will automatically drop your lowest pre-lab quiz score.
- **Collaboration (10% of grade).** In this course (and often in life), a few heads are better than one. You will be assigned to a group at the beginning of the course. You will receive teamwork training and sign a group contract. You will receive feedback along the way. Twice, you will grade yourself and your group members in terms of how equally everyone has contributed to the projects. If you do not complete the peer evaluation on time, you will receive a 0.
- **Weekly in-class group scientific reflection (30% of grade).** By the end of each class session, you and your group members will collaboratively answer questions about the lab project you completed. You will turn this in on Canvas before you and your group members leave class. If you come to class more than five minutes late (in which case you will be told to leave with an unexcused absence) or leave before your group has submitted the assignment, you will receive a zero. Canvas will automatically drop your lowest scientific reflection score.
- **Research proposal (10% of grade).** You and your group members will write a research proposal to justify and design your own experiment using seed beetles. You will receive details in class and on Canvas. You will receive a 0 if you have an unexcused absence the day this is due. You are encouraged to use (and rewarded for using) the USU Science Writing Center as a resource for this assignment (<https://www.usu.edu/science/swc>).
- **Research presentation (20% of grade).** You and your group members will present to the rest of the class the entire process of science you experienced regarding your experiment using seed beetles. You will receive details in class and on Canvas. You will receive a 0 if you have an unexcused absence the day this is due. You are encouraged to use (and rewarded for using) the USU Science Writing Center as a resource for this assignment (<https://www.usu.edu/science/swc>).

Grading Policy. Your grade will be reflected by your performance on these five major assignments. Final course grades are based on the following scale and will not be rounded up to the nearest whole number: A (93 to 100%), A- (90 to <93%), B+ (87 to <90%), B (83 to <87%), B- (80 to <83%), C+ (77 to <80%), C (73 to <77%), C- (70 to <73%), D+ (67 to <70%), D (60 to <67%), and F (0% to <60%).

III. Lab Project Schedule

Week of	Lab project	Due Dates
Jan 6 & 13	<i>No class these first two weeks</i>	
Jan 20	1. Arthropod behavior & 95% CIs	Required syllabus quiz, Required safety contract; Ungraded practice pre-lab quiz, Team contract, Scientific reflection 1
Jan 27	2. Guppy mating & T-test	Pre-lab quiz 1, Scientific reflection 2
Feb 3	3. <i>Daphnia</i> on drugs & ANOVA	Pre-lab quiz 2, Scientific reflection 3
Feb 10	4. Get to know seed beetles	Pre-lab quiz 3, Scientific reflection 4
Feb 17	5. Research proposal	Pre-lab quiz 4, Scientific reflection 5
Feb 24	6. Review panel, proposal due	Pre-lab quiz 5, Scientific reflection 6
March 2	<i>No class during spring break</i>	
March 9	7. Set up seed beetle project	Peer & self evaluation 1, Pre-lab quiz 6, Scientific reflection 7
March 16	8. Evolution of multicellularity	Pre-lab quiz 7, Scientific reflection 8
March 23	9. Evolution of multicellularity	Pre-lab quiz 8, Scientific reflection 9
March 30	10. Evolution of multicellularity & linear regression	Pre-lab quiz 9, Scientific reflection 10
April 6	11. Analyze seed beetle data	Pre-lab quiz 10
April 13	12. Seed beetle project presentations	Pre-lab quiz 11, Scientific reflection 11
April 20	<i>No class during finals week</i>	Peer & self evaluation 2

IV. Instructor Information. When you have questions or concerns, start with the graduate teaching assistant (GTA) for your lab section. If the issue cannot be resolved, then involve the lab coordinator.

Name	Role	Email	Office hours
Beth Ogata	Lab coordinator & prep	bethogata@gmail.com	Tues & Thurs 9:30-10:30 in LSB 347
Lauren Lucas	Course designer	llucas@usu.edu	N/A
Mitzi Christensen	Lab safety	mitzi.christensen@usu.edu	N/A
Tara Saley	Lab prep	tara.saley@gmail.com	N/A
Shay Fidel	Lab prep (UTF)	shayskid@gmail.com	N/A
Hannah Wilson	Section 001 & lab prep	hswilson1994@gmail.com	By appt.
Zach Schumm	Sections 002, 007, 013	zach.schumm@aggiemail.usu.edu	By appt.
Leandro Nascimento	Sections 003, 011, 023	le_nasc@hotmail.com	By appt.
Ellis Juhlin	Sections 004, 015, 022	juhlinellis@gmail.com	By appt.
Sam Willard	Sections 005, 021, 027	sam.joel.willard@gmail.com	By appt.
Jelveh Tamjidi	Sections 006, 012, 017	jelveh.tamjidi1985@gmail.com	By appt.
Megan Sidran	Sections 008, 020, 028	megsidran@gmail.com	By appt.
Karen Foley	Sections 009, 024	kfoley013@gmail.com	By appt.
Ellie Smith-Eskridge	Sections 010, 016, 029	a.smitheskridge@aggiemail.usu.edu	By appt.
Tim DeLory	Sections 014, 018, 026	timothy.delory@aggiemail.usu.edu	By appt.
George Waldren	Sections 019, 025	george.waldren@aggiemail.usu.edu	By appt.
Jennifer Bryan	Science garden assistant	N/A	N/A

V. Required Course Materials

- **Course fee:** Your \$110 fee is used for consumables (\$40), equipment (\$20) and GTA support (\$50).
- **Canvas:** Use our course Canvas site to receive announcements, download free lab manual documents, take quizzes, and submit group assignments.
- **Safety equipment:** You will agree to abiding by lab safety requirements on Canvas at the beginning of the course, and any violation will result in disciplinary action. Wear long pants/skirt and covered shoes every week. If you are not wearing the proper attire, you will be sent home with an unexcused absence. No food or drink is allowed outside of your bag while in the classroom. You will have an assigned locker for use during class time. We provide PPE (disposable gloves, lab coats, goggles) for use when necessary. If you bring your own lab coat and goggles, store them in a sealed container in your bag when not in use and clean them frequently at home.
- **Printing:** Bring hard copies of lab documents to class. Store them in a binder for reference throughout the semester. For a list of printers on campus, see: <http://campusprint.usu.edu/>
- **Laptop with a Google Drive account** for data entry, statistical analysis and word processing. Borrow a class laptop if you do not have one. Put away electronic devices when instructed. Do not touch laptops with gloved hands.

VI. Attendance Policy (adapted from the USU Course Catalog):

The university views class attendance as an individual student responsibility. You may not attend a lab other than the one for which you are registered. Your TA will not provide you an opportunity to make up work missed because of an unexcused absence.

Unexcused absences include: being sent home due to coming to lab without the proper attire (in which case you will be sent home); coming to lab more than five minutes late (in which case you will be sent home) or leaving before group work has been submitted; family vacation; work.

The following are considered excused absences if properly documented: absences demanded by university-sponsored or sanctioned activities; mandatory participation as a student-athlete in NCAA-sanctioned competition; injury, illness or medical condition/status that is too severe or contagious for the student to attend class; major injury, illness, medical condition/status, or death in a student's immediate family; required participation in military duties; mandatory admissions interviews for professional or graduate school; participation in legal proceedings that require the student's presence.

In the case of an excused absence, you must provide your TA with written evidence substantiating the reason for the absence (for example, a medical confirmation note that contains the date and time of the visit and the medical professional's confirmation) prior to the date of absence if feasible. In cases where advance notification is not feasible (e.g., accident or emergency), the student must provide written documentation by the end of the second working day after the absence. If the absence is excused and properly documented, you must meet with your TA outside of class to discuss what you missed and your make-up work assignment. Any make-up work must be completed within 14 calendar days of the last day of the absence. Your TA will deny any excused absence make-up work requests that exceeds 20% of class sessions (more than two class sessions).

VII. Academic Freedom and Professional Responsibilities: The university is a community dedicated, through promulgation of thought, truth, and understanding, to teaching, research, and service. It must therefore, be a place where innovative ideas, original experiments, creative activities, and independence of thought are not merely tolerated but actively encouraged. Thought and understanding flourish only in a climate of academic freedom and integrity, expressed collectively by colleges and departments as well as individually through research and teaching and as they exist within the wider context of advanced study as commonly understood by all universities. The community also values diversity and respect, without which there can be no collegiality among faculty and students. In addition, the university community values individual rights and freedoms, including the right of each community member to adhere to individual systems of conscience, religion, and ethics. Finally, the university recognizes that with all rights come responsibilities. USU Policy 403 further defines academic freedom and professional responsibilities.

VIII. University Regulations Regarding Student Conduct: The University respects the rights of faculty to teach and students to learn. Maintenance of these rights requires classroom conditions that do not impede the learning process. Disruptive classroom behavior will not be tolerated. An individual engaging in such behavior may be subject to disciplinary action. "Disruptive classroom behavior" involves physical actions, verbal utterance, or other activities which interfere with either the faculty member's ability to conduct the class or the ability of other students to profit from the instructional program. For more information: <http://studentconduct.usu.edu/studentcode/article5>

IX. Final Examination: No-Test Days Policy: For classes that meet for a full semester, a five-day period designated as "no-test" days precedes final examinations. During this time, no major examinations, including final examinations will be given in order that students may concentrate on classwork, the completion of special assignments, writing projects, and other preparation for duly scheduled final examinations. Approved exceptions include final papers, weekly chapter quizzes, quizzes, projects, and examinations associated with a lab that does not meet during final examinations.

X. Academic Appeals: When a student feels that he/she has been treated unfairly by a specific professor or existing rules or regulations, there is a sequential process which should be followed in handling the situation. Problems in this area include disagreements regarding a course grade, intervening circumstances which prevented the student from following an assigned procedure, etc. When a student experiences such difficulties, he/she should first go to their TA within two weeks of receiving the posted grade in Canvas. It may be possible to resolve the problem at this level. Should no agreement be reached, the student may then take the situation to the lab coordinator. Should no agreement be reached, the student may then take the situation to the department head. If no resolution is reached at that level, the student may take the problem to the dean of the college. If there is still no resolution, the matter will be forwarded to an appeals committee. As a final recourse, the student may take the problem to the Provost's Office, where a final decision will be made.

XI. The Honor System and Plagiarism:

The University expects that students and faculty alike maintain the highest standards of academic honesty. The Code of Policies and Procedures for Students at Utah State University (Student Conduct) addresses academic integrity and honesty and notes the following:

Academic Integrity: Students have a responsibility to promote academic integrity at the University by not participating in or facilitating others' participation in any act of academic dishonesty and by reporting all violations or suspected violations of the Academic Integrity Standard to their instructors.

The Honor Pledge: To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity". Violations of the Academic Integrity Standard (academic violations) include, but are not limited to cheating, falsification, and plagiarism.

Plagiarism includes knowingly "representing by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials." The penalties for plagiarism are severe. They include warning or reprimand, grade adjustment, probation, suspension, expulsion, withholding of transcripts, denial or revocation of degrees, and referral to psychological counseling.

XII. Students with Disabilities: USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) as early in the semester as possible (University Inn # 101, 435-797-2444, drc@usu.edu). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

XIII. Service Animals in Biology Labs: Utah State University is committed to providing access for service dog handlers. Due to the unique nature of the laboratory environment service animal handlers must meet with the Disability Resource Center prior to bringing a service dog into the lab. The purpose of this meeting is not to prevent you from having your service animal with you but rather to understand how to best accommodate your needs and the needs of your animal. Please contact the Disability Resource Center at 435-797-2444 or drc@usu.edu to set up an appointment. Note that it is USU policy that other animals, including emotional support animals, are not permitted in USU buildings or facilities without the express permission of the organization responsible for that particular building.

XIV. Mental Health: Mental health is critically important for the success of USU students. As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. Utah State University provides free services for students to assist them with addressing these and other concerns. You can learn more about the broad range of confidential mental health services available on campus at Counseling and Psychological Services (CAPS).