

Biology I Laboratory (BIOL 1615)

Semester: Fall 2017

Location: BNR 120 or 124

I. Course Objectives: This is a laboratory course focused on the process of science in the context of following broad topics: genetics, cell, and molecular biology. This course will give you substantial experience with discovery-based science, whereas BIOL 1625 in the spring semester is largely focused on hypothesis-driven science. It is designed to be taken concurrently with BIOL 1610. By the end of BIOL 1615, you will be able to:

1. apply course information when problem solving
2. develop specific skills, competencies, and points of view needed by professionals in the field of biology
3. work effectively in a group

II. Instructor Information

Lab Coordinator: Lauren Lucas

Contact information: e-mail llucas@usu.edu, office phone 797-9461

Drop-in office hours: Tuesdays and Thursdays 1-2 pm in BNR 247; *See your TA first with any issues.*

Teaching Assistants (TAs): *Your TA will inform you of the time and location of their office hours the first week of lab.*

TA	Email	Section(s)
Madeleine Dupuy	madeleine.dupuy@usu.edu	019
Megen Kepas	megenkepas@gmail.com	006
Elisa Lauritzen	Elisa.lauritzen@aggiemail.usu.edu	008, 015, 022
Meg Licht	meg.licht@aggiemail.usu.edu	004, 016, 030
Lauren Lucas	llucas@usu.edu ; lauren.lucas@aggiemail.usu.edu	001
Anne McManis	anne.mcmanis@gmail.com	007, 018, 024
Beth Ogata	bethogata@gmail.com	002, 012
Jacque Pena	jacquelinepena412@gmail.com ; jacquelinepena@aggiemail.usu.edu	010, 028, 032
Tara Saley	Tara.Saley@gmail.com	003
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George Waldren	george.waldren@aggiemail.usu.edu	005, 011, 025
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Marilyn Wright	wright.marilyn13@gmail.com	009, 023, 029
Cecilia Vieira	ceciliavieira@me.com ; ceciliavieira@gmail.com	014, 020, 033

III. Required Lab Materials

- Canvas: You will use our course Canvas site to receive important announcements, download free lab manual documents, take quizzes, and submit group assignments.
- Printing: You will need to bring lab documents to class in print. 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: We have a laptop you and your group members can borrow during class if you do not have one. Laptops must be put away when we are working with chemicals or equipment.
- Course fee: Your \$110 fee is used for disposable equipment (\$30), equipment (\$20) and GTA support (\$50).
- Safety equipment: You will sign a lab safety document at the beginning of the course. In compliance with lab safety, you must wear pants and closed-toe shoes in class 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. We will provide disposable gloves, lab coats, and goggles for use when necessary. You may bring your own lab coat and goggles to class.

IV. Assignments and grading policy

- **Weekly online pre-lab quizzes (30% of grade).** You will read lab documents found on Canvas before coming to lab each week. You will answer a few questions on Canvas regarding this background information. The quiz will be available online by Friday of each week and will close an hour before class starts. For all quizzes: it is not timed, you are allowed one attempt, and we will go over the correct answers together at the beginning of class. Canvas will automatically drop your lowest pre-lab quiz score.
- **Weekly in-class group scientific reflection (40% of grade).** By the end of each lab 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 members, you will receive a zero. Canvas will automatically drop your lowest scientific reflection score.
- **Lab Report (30% of grade).** You and your group members will write a lab report, in the format of a scientific manuscript, regarding the endophyte phylogenetics project you will conduct over several weeks. You will receive details in class and on Canvas.

Your grade will be reflected by your performance on these three major assignments. Final course grades are based on the following scale and will not be rounded up to the nearest whole number: A (93-100%), A- (90-92%), B+ (87-89%), B (83-86%), B- (80-82%), C+ (77-79%), C (73-76%), C- (70-72%), D+ (67-69%), D (60-66%), and F (59% and below).

V. Lab format and schedule: There will be brief lectures and out-of-class readings and quizzes to cover background content, but hands-on collaborative projects will dominate the course.

Week of	Lab project	Due Dates:
Aug 28	No labs this week	Pre-lab quizzes are always due an hour before class, Scientific reflections are always due at the end of class.
Sept 4	No lab this week (Labor Day on Monday)	
Sept 11	1. Introduction to discovery-based science Plant diversity and adaptation: greenhouse visit	Scientific reflection 1
Sept 18	2. Estimating trait heritability in <i>Medicago truncatula</i>	Pre-lab quiz 1, Scientific reflection 2
Sept 25	3. Detect a GMO	Pre-lab quiz 2, Scientific reflection 3
Oct 2	4. Detect a GMO Endophyte phylogenetics project introduction	Pre-lab quiz 3, Scientific reflection 4
Oct 9	5. Endophytes: sample collection and culturing	Pre-lab quiz 4, Scientific reflection 5
Oct 16	No labs this week (Fall Break on Friday)	
Oct 23	6. Endophytes: microscopy	Pre-lab quiz 5, Scientific reflection 6
Oct 30	7. Endophytes: DNA extraction and PCR	Pre-lab quiz 6, Scientific reflection 7
Nov 6	8. Endophytes: Gel electrophoresis and PCR clean-up	Pre-lab quiz 7, Scientific reflection 8
Nov 13	9. Endophytes: DNA sequence analysis	Pre-lab quiz 8, Scientific reflection 9
Nov 20	No labs this week (Thanksgiving Break Wed-Fri)	

Nov 27	10. Peer review and lab report	Pre-lab quiz 9, Scientific reflection 10 Lab report due at the end of class
Dec 4	11. Introduction to hypothesis-driven science	Pre-lab quiz 10, Scientific reflection 11
Dec 11	<i>No lab during finals week</i>	

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. 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 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. The Honor System and Plagiarism: 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." A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- espouses academic integrity as an underlying and essential principle of the Utah State University community;
- understands that each act of academic dishonesty devalues every degree that is awarded by this institution;
- is a welcomed and valued member of Utah State University.

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.

VIII. 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.