

Biology I Laboratory (BIOL 1615)

Semester: Fall 2018

Location: BNR 120 or 124

I. Course Objectives: This laboratory course provides an authentic research experience to facilitate learning the entire process of science. BIOL 1615 will give you experience with **discovery-based (descriptive) science**, whereas BIOL 1625 in the spring semester is largely focused on hypothesis-driven science. 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 lauren.lucas@usu.edu, office phone 797-9461

Drop-in office hours: Thursdays 2-4 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)
Binod Borah	binod.d.borah@gmail.com	006, 030, 033
Brandon Claridge	brandonclaridge1@gmail.com	012, 020, 028
Ashley Dederich	ashley.dederich@aggiemail.usu.edu	010, 016, 024
Shane Evans	shanevans11@gmail.com	009, 023, 026
Jose Fagua	camilo.fagua@aggiemail.usu.edu	015, 019, 031
Elsa Jos	elsaminijos@gmail.com	004, 029, 032
Lauren Lucas	lauren.lucas@usu.edu , lauren.lucas@aggiemail.usu.edu	001
Leandro Nascimento	le_nasc@hotmail.com , lenasc999@gmail.com	007, 011, 021
Beth Ogata	bethogata@gmail.com	002
Jessica Scholz	jessica.scholz@aggiemail.usu.edu	005, 013, 017
Jennifer Weathered	j.weathered@gmail.com	008, 022, 025
Hannah Wilson	hswilson1994@gmail.com	003
Marshall Wolf	marshallthewolf@gmail.com	014, 018, 027

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 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. We have a laptop you and your group members can borrow during class if you do not have one. Laptops must be put away during the TA's brief presentation, and when we are working with chemicals or equipment.
- Course fee: Your \$110 fee is used for consumables (\$40), equipment (\$20) and GTA support (\$50).
- Safety equipment: You will agree to abiding by lab safety requirements at the beginning of the course, and any violation will result in disciplinary action. In compliance with lab safety, you must wear pants and covered 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 documents found on Canvas and answer a few questions on 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. 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.
- **Weekly in-class group scientific reflection (40% 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.
- **Lab Report (30% of grade).** You and your group members will write a lab report, in the format of a scientific manuscript, regarding your the biodiversity group project you will conduct over several weeks. You will receive details in class and on Canvas. You are encouraged to use the USU Science Writing Center as a resource for this assignment (<https://www.usu.edu/science/swc>).

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: Pre-lab quizzes are always due an hour before class, Scientific reflections are always due by the end of class.
Aug 27	No labs this week	
Sept 3	No lab this week (Labor Day on Monday)	
Sept 10	1. Introduction to discovery-based science Quantify intraspecific variation: humans	Scientific reflection 1
Sept 17	2. Quantify intraspecific variation: plants	Pre-lab quiz 1, Scientific reflection 2
Sept 24	3. Quantify interspecific variation: plants	Pre-lab quiz 2, Scientific reflection 3
Oct 1	4. Biodiversity project introduction: How to read and write a scientific article	Pre-lab quiz 3, Scientific reflection 4
Oct 8	5. Biodiversity project: collecting & culturing	Pre-lab quiz 4, Scientific reflection 5
Oct 15	No labs this week (Fall Break on Friday)	
Oct 22	6. Biodiversity project: microscopy	Pre-lab quiz 5, Scientific reflection 6
Oct 29	7. Biodiversity project: DNA extraction & PCR	Pre-lab quiz 6, Scientific reflection 7
Nov 5	8. Biodiversity project: Gel electrophoresis & PCR clean-up	Pre-lab quiz 7, Scientific reflection 8
Nov 12	9. Biodiversity project: DNA sequence analysis	Pre-lab quiz 8, Scientific reflection 9

Nov 19	<i>No labs this week</i> (Thanksgiving Break Wed-Fri)	
Nov 26	10. Peer review, lab report due by end of class	Pre-lab quiz 9, Scientific reflection 10
Dec 3	11. Collaborate with a graduate student: bee immune function	Pre-lab quiz 10, Scientific reflection 11
Dec 10	<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; 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 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 cheating, falsifying or plagiarism 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.

IX. 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>

X. 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.

XI. 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 the specific professor or administrator and discuss the situation. 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 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.

XII. 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.

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.