

BIOL 1620L: Biology II Lab

Utah State University Eastern

Spring 2018 - 1 credit

Lab: R 1:30-4:20; F 7:30-10:20, Reeves 231

Instructor: Dr. Wayne Hatch, Reeves 251

Office Hours: R 10-12pm, F 1-4, and by appointment

Contact: wayne.hatch@usu.edu, 613-5393

Objectives

The objectives of the lab are to provide the student with experience designing, carrying out, and reporting results of scientific experiments.

Lab Expectations:

Each laboratory session will begin with a short discussion and instructional period. Use the discussion periods to ask questions and clarify procedures. You are expected to arrive on time and participate in the entire lab. Expect each lab to take the entire 3 hour period to complete.

Course Fee:

This course has an associated \$30 fee. This will be used to purchase supplies for lab including supplies: media for culturing and characterizing bacteria, plastic and glassware, soap and sanitizer, gloves, paper towels, cotton swabs, and genetic sequencing supplies.

Assessments

Assessment of participation in the Small World Initiative

Students will attend each lab and work with one partner. A lab notebook will be kept and checked three times during the semester. These notebook checks will be worth 20 points.

Assessment of using analytical skills in research

Students will prepare a poster of their cumulative research findings. This will include a summary of their individual work including an Introduction, Methods, Results, including an analysis of findings in graphical and/or tabular form, and Conclusions sections. The completed poster will present the reasoning and analysis of the research done throughout the semester. It will be judged on clarity of information presented and quality of analytical thought put into the research. This assessment will be worth 50 points. To help in the production of this poster, 4 assignments will be given worth 10 points each. These will consist of a draft of each of the following: Introduction, Methods, Results, and Conclusions.

Attendance:

Attendance is **mandatory**. If you must miss a lab due to illness or other extreme circumstance (family death), notify your Dr. Hatch prior to the start of your lab.

Late assignment policy:

Late reports will be docked 25% of the total possible points.

Cheating and plagiarism:

Cheating of any kind will not be tolerated. Plagiarism is a form of cheating in which a student copies exactly the work of another student, passages from a textbook or other resource material. Plagiarism is unacceptable and subject to the same penalties as cheating. Lab reports should be written in your own words and not a copy of your lab partner's report.

Schedule

<u>Date</u>	<u>Lab Activity</u>
January 11-12	Introduction to SWI; Safety in the Lab
January 18-19	Aseptic transfers; Soil selection and media choice
January 25-26	Serial dilution and plating of soil sample; Practice calculating cfu/g; Introduction Assignment
February 1-2	Screen for antibiotic producers; Calculate cfu/g; Pick and patch Introduction Assignment due
February 8-9	Colony morphology, Discuss ESKAPE pathogens/ safe relatives and choose ESKAPE pathogens to test against
February 15-16	Plate against ESKAPE relatives, Notebook check
February 22-23	Create pure culture isolate streaks Methods Assignment
March 1-2	Discuss PCR and what happens during a full run, allow time for expanded testing of isolates or repeat testing Methods Assignment due;
March 8-9	<i>Spring Break</i>

March 15-16	Prepare isolates for PCR; Run agarose gels from prepare samples to be sent for sequencing Notebook check
March 22-23	Discuss & Analyze DNA sequencing; Spread plate Results Assignment
March 29-30	Chop and Freeze plates; Discuss characterizing microbes Results Assignment due
April 5-6	Antibiotic extraction Conclusions Assignment; Notebook check
April 12-13	Work on posters Conclusions Assignment due
April 19-20	Work on/Turn in posters
April 26-27	Poster Symposium