BIOL 1625: Biology II Lab
Utah State University Eastern
Spring 2021 - 1 credit

Lab: R 1:30-4:20; F 7:30-10:20, Reeves 231
Instructor: Dr. Wayne Hatch, Reeves 251
Office Hours: 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 Manual:

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, microscope slides, conical tubes, petri dishes, and genetic sequencing supplies.

Assessments

Assessment of participation in the Tiny Earth Initiative
Students will attend each lab and work with one partner. A lab notebook will be kept and checked twice 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.

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/notebooks should be written in your own words and not a copy of your lab partner’s work.

Schedule – The following schedule is a guide for the order of work that will be done. Due to the nature of research, the schedule may vary for each student as some procedures may be repeated before moving on.

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab Activity</th>
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<tbody>
<tr>
<td>January 21-22</td>
<td>Introduction to TEN; Safety in the Lab</td>
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<tr>
<td>January 28-29</td>
<td>Aseptic transfers; Soil selection and media choice</td>
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<td>January 4-5</td>
<td>Serial dilution and plating of soil sample; Practice calculating cfu/g;</td>
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<tr>
<td>February 11-12</td>
<td>Screen for antibiotic producers; Calculate cfu/g; Pick and patch</td>
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<td><strong>Introduction Assignment</strong></td>
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<td>February 18-19</td>
<td>Colony morphology, Discuss ESKAPE pathogens/ safe relatives and choose ESKAPE pathogens to test against</td>
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<td><strong>Introduction Assignment due</strong></td>
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<tr>
<td>February 25-26</td>
<td>Plate against ESKAPE relatives,</td>
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<td>March 4-5</td>
<td>Create pure culture isolate streaks</td>
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<td><strong>Methods Assignment</strong></td>
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<td>March 11-12</td>
<td>No Class</td>
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<td>Read about PCR and what happens during a full run, allow time for expanded testing of isolates or repeat testing</td>
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<td><strong>Notebook check</strong></td>
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March 18-19  Prepare isolates for PCR; Run agarose gels from prepare samples to be sent for sequencing

Methods Assignment due;

March 25-26  Discuss & Analyze DNA sequencing;
Discuss characterizing microbes

Spread plate

Results Assignment

Chop and Freeze plates;

April 1-2  Results Assignment due

April 8-9  No Class

April 15-16  Work on Posters

Notebook check

April 22-23  Work on/Turn in posters

April 29-30  Poster Symposium – Tentative