Molecular Biology, Cell Biology, and Biochemistry Laboratory
Biology 213
Fall 2017

Goals:

The laboratory component of MCB is designed to complement the material presented in lecture; to familiarize you with basic skills and techniques, bioinformatics tools, and equipment used in modern laboratories to study genes, genomes, proteins, organelles, and whole cells; to improve your ability to design and analyze experiments; and to keep a detailed lab notebook.

Laboratory: Wednesday, Thursday, or Friday 1:30 – 4:30 p.m. In K208.

Faculty:

Aaron Goldman (W)
Science Center A136
775–8749
agoldman@oberlin.edu
Office hrs: M 1:30 – 2:30 pm
R 11:00 – noon
F 1:30 – 2:30 pm
Or by appointment

Maureen Peters (R)
Science Center K210
775–8320
mpeters@oberlin.edu
Office hrs: T 12 – 1:15 pm
F 1:30 – 2:30 pm
Or by appointment

*Katherine Cullen (F)
Science Center K200C
775–6725
kcullen@oberlin.edu
Office hrs: M 11:00 – noon
Tu 10:00 – 11:30 am
Or by appointment

*Contact Prof. Cullen for administrative problems (registration issues, health emergencies, etc.)
Teaching Assistants and Help Sessions:
There are two teaching assistants for the lab this semester: Sarah Brainard, a 3\textsuperscript{rd} year neuroscience major, and Jenn Feigin, a 4\textsuperscript{th} year biology and history major. In addition to visiting office hours for Prof. Cullen, you are strongly encouraged to attend the lab report help sessions held by the TAs. These sessions will be held every week that you have a lab report due.

- **Sunday** 7:00 – 8:00 pm in A255
- **Monday** 7:00 – 8:00 pm in A255

You are also encouraged to visit the student tutors at the quantitative skills drop-in tutoring center for assistance with problems including calculations or spreadsheet analysis. (Science Library, study room N176, and in Mudd, main floor. Both locations: Sunday through Thursday 7 – 11 pm. No appointment is necessary.)

Attendance:
Attendance is required for all labs. You must attend the lab section in which you are enrolled. Under rare circumstances, an unavoidable conflict may arise. If you are an athlete with conflicts on days of competitions, please provide a schedule to Prof. Cullen as soon as one is available.

- Conflicts predictable in advance (e.g., away athletic events, family weddings, musical or other performances, etc.)
  Notify Prof. Cullen AS SOON AS you are aware of the conflict.
- Unexpected illnesses
  Contact Prof. Cullen AS SOON AS you SUSPECT an illness might interfere with your coming to lab.

Requests to attend a different lab section will not be considered after noon on the day of your assigned lab section without a doctor’s note (indicating that a serious emergency prevented earlier communication). Unexcused absences may not be made up and credit will not be given for that week’s lab report. *Missing more than one lab may result in failure of the course.*

Grading:
The points you earn in lab will be worth **20\% of your total Biol 213 grade.**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Weekly lab reports</td>
<td>200 pts</td>
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<tr>
<td>Quiz</td>
<td>100 pts</td>
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<tr>
<td>Lab Citizenship</td>
<td>15 pts</td>
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<td></td>
<td>315 pts</td>
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You must earn a C– (70\%) or better in lab in order to pass Biol 213.

Late Lab Report policy:
Lab reports are due at **12:00 PM NOON on the day of your lab** in the appropriate box outside of Craig lecture hall. Late reports will be penalized 25\% and will only be accepted until **9:00 AM** of the following weekday and must be handed directly to an instructor or slid under Prof. Cullen’s office door. In other words, do NOT turn in a late report to the drop boxes!! No reports will be accepted beyond 9:00 AM on the weekday following the due date except in the case of an unexpected emergency with a documented cause. Make sure you hand in your report to the correct drop box—lab reports handed into the wrong box will incur a late penalty or may not be accepted at all.
**Quiz:**
A 100-point quiz will be given during the last lab meeting of the semester. It must be completed individually but you will be allowed to use your own graded lab reports as a resource. The quiz will consist of problems closely paralleling those in lab reports.

**Lab Citizenship:**
Students will be awarded up to 15 points based on their lab citizenship and lab partner evaluations.

Scientific research often involves collaborations. In order to be a valued and effective collaborator you will need to demonstrate good lab citizenship and engagement with the experimentation and analysis. Lab citizenship comprises your attendance and promptness, your preparedness for lab (such as preparing your notebook ahead of time), your demonstrated ability to follow class expectations and safety guidelines (such as cleaning up after labs, wearing your lab coat, etc.), and how well you worked as a member of a research team.

At the end of the semester you will have a chance to evaluate your partner’s ability to collaborate effectively. You will be asked specific questions related to your partner’s preparedness for lab and division of both the physical and mental efforts necessary to complete your labs successfully.

**Lab notebooks:**
You are expected to keep a lab notebook for accurate reporting of protocols, pre-lab calculations, data entry and conclusions. Detailed instructions on the appropriate format of lab notebooks will be provided. Pre-lab entries should be written in your notebook before coming to lab. During lab, you should note any protocol modifications or additional details. You will also record all results and calculations in your notebook, either during or after the lab session. While these will not be collected separately, failure to keep a lab notebook properly can affect your lab citizenship grade as this falls under class expectations and can affect your ability to serve as a good lab partner.

**Honor System:**
Lab assignments and quizzes will be given under the Honor System as described at https://new.oberlin.edu/office/dean-of-students/honor/. The application of the Honor System to laboratory work and lab reports will be described during the first laboratory meeting. You are NEVER permitted to use or look at any material from previous classes. You are also NEVER permitted to print out keys for the lab reports or possess a key in ANY format (e.g. no downloaded digital copies or photographs). Discussion of the material on lab reports is permitted and even encouraged, however, the report you turn in for grading must be your own work. This includes responding to questions in your own words and generating your own graphs/charts from your group’s data.

**Students with Disabilities:**
If you have a disability that may have some impact on your work in this class and for which you may require accommodations, please see me and the Office of Disability Services so that such accommodations may be arranged.

**Required Laboratory Materials:**
1. Clean laboratory coat with long sleeves or other long-sleeve, front-button garment dedicated to Biol 213 lab. *This may be purchased at the bookstore.*
2. Indelible **extra fine** marking pen (e.g., “Sharpie”). *Dark colors are most legible. This may be purchased at the bookstore.*
3. Calculator.
4. Lab notebook. *Your lab notebook must be bound* (i.e., no spiral notebooks). You can use lab notebooks from previous classes if there’s room left, but you should not use a notebook for 213 lab and another class simultaneously this semester. This may be purchased at the bookstore.

5. Lab Manual in a three-ring binder (either a 1” binder or even a simple folder with three metal clips).*You may purchase a printed copy of the lab manual from Prof. Cullen for $5. The lab manual is also available to all Biol 213 students for free on Blackboard as a pdf.

6. A New England Biolabs catalog will be given to you during the fourth lab session. Catalogs have also been placed on reserve in the Science library.

*Lab Manual Sales:*
You can purchase lab manuals for $5 from Prof. Cullen in her office (Science Center K200C) during the first week of classes (8/28 – 9/1/17). **Payment is due at pickup.** Cash and checks payable to “Oberlin College Biology” are acceptable. Correct change is helpful. No Obie Dollars.

Lab Schedule:

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<thead>
<tr>
<th>Week of</th>
<th>Lab #</th>
<th>Topic</th>
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<tr>
<td>Aug. 28–9/1</td>
<td></td>
<td>NO LAB</td>
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<td><em>Purchase lab manuals and take Pre-Quiz!</em></td>
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<tr>
<td>Sept. 6–8</td>
<td>1</td>
<td>Got Protein?</td>
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<td>Sept. 13–15</td>
<td>2</td>
<td>Enzyme Kinetics</td>
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<td>Sept. 20–22</td>
<td>3</td>
<td>Signal Transduction in Yeast I</td>
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<tr>
<td>Sept. 27–29</td>
<td>4</td>
<td>Signal Transduction in Yeast II</td>
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<tr>
<td>Oct. 4–6</td>
<td>5</td>
<td>Molecular Biology Lab I</td>
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<tr>
<td>Oct. 11–13</td>
<td>6</td>
<td>Molecular Biology Lab II</td>
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<tr>
<td>Oct. 18–20</td>
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<td>NO LAB (SPRING BREAK)</td>
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<tr>
<td>Oct. 25–27</td>
<td>7</td>
<td>Molecular Biology Lab III</td>
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<tr>
<td>Nov. 1–3</td>
<td>8</td>
<td>Molecular Biology Lab IV</td>
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<td>Nov. 8–10</td>
<td>9</td>
<td>Molecular Biology Lab V</td>
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<td>Nov. 15–17</td>
<td>10</td>
<td>Bioinformatics Exploration</td>
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<tr>
<td>Nov. 22–24</td>
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<td>NO LAB! (THANKSGIVING BREAK)</td>
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<td>Nov. 29–Dec. 1</td>
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<td>LAB QUIZ</td>
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