# BIOSC 0058: FOUNDATIONS OF BIOLOGY I LABORATORY:

**SEA-PHAGES**  
Department of Biological Sciences  
University of Pittsburgh

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- **JJ Lapin** jsl45@pitt.edu

### Office hours
- **Office hours:** by appointment

You are encouraged to contact your instructors when you need help. Many questions may be answered in class, or you may email your instructor to set up an appointment when you need more time to discuss your project, course material, or course related issues.

### Classes: meeting times & places
- **M/W:** 9-10:20; 12-1:20; 2-3:20  
- **Tu/Thr:** 9 – 10:20; 11-12:20  
- **Wet lab classes:** A146 Langley Hall  
- **Lecture:** Fridays, 1pm 221 Langley

### Course overview
This course is designed to ground students in fundamental biological concepts and scientific reasoning using real hypothesis driven research. Students will discover, propagate, and characterize their own bacteriophage while honing their scientific communication skills through the keeping of a laboratory notebook and presenting their findings in a final project.

### Textbook
No textbook is required. The required readings are recently published papers on the covered subject. They are listed in the course schedule and will be available through CourseWeb. Additional material and the lab manual also may be found on the HHMI SEA Wiki at [http://www.hhmi.org/seawiki](http://www.hhmi.org/seawiki) and at the phage database at [http://phagesdb.org](http://phagesdb.org)

### CourseWeb
Class materials and updates will be posted on course web. You are expected to check regularly
Academic Grading

Course policies

Attendance is mandatory and there will be no make-up labs. Absence has to be properly excused and documented (a note from a doctor (illness), a parent (family emergency), or a University official (University business)). A written excuse with acceptable documentation has to be submitted to the instructor no later than one week after the missed class. If you miss more than 20% of the classes you should discuss possible options available to you with your advisor or the CAS Dean’s Office.

Grading

Final grades will be based on scores obtained from weekly quizzes (35%), evaluation of your laboratory notebook (20%), the final class project (30%) and homework/class participation (15%). All coursework has to be completed to obtain a grade in this course. Final grades will be determined by the percentage of the total points you earn during the course.

- **Examination** – There will be weekly quizzes during the lecture period. The lowest scoring quiz will not count in the overall average. There will be no make-up quizzes except in special cases such as illness, severe personal trauma, and (rarely) University business. If you miss a quiz and you do not have an acceptable excuse, you will receive score of “0” for that quiz.

- **Assignments** – there will be several assignments during the term that will assess your overall understanding of the course objectives. Some may be given in class; some may be given as take home assignments. These are not planned in the course schedule and can be given at any time during the term.

- **Laboratory notebook** - Each student has to maintain a laboratory notebook, where information about the performed experiments, or any additional work has to be recorded in detail. A brief introduction to writing a laboratory notebook will be provided. Laboratory notebooks will be evaluated based on the quality of laboratory note taking.

- **Class project** – Each student will be working on a class project throughout the semester. Students are expected to present a research project poster consisting of an abstract, introduction, materials and methods, results, and discussion sections. Each project will be presented to the class in a brief (~10 mins) presentation. The emphasis of the evaluation will be given on the understanding of applied concepts and data analyses and a detailed description of the research topic.

G grade

If you wish to petition for a G grade, you must submit a request for this change in writing and you must document your reason(s). You will be required to make arrangements, in person, for the specific tasks you must complete in order to remove the G grade. You will be expected to sign documentation describing the work that has to be completed and the due date. All required work must be completed by the specified date otherwise a zero will be assigned for the work and final grade will be determined using this score. Remember that G grades, according to CAS guidelines, are to be given only when students who have been attending a course and have been making regular progress are prevented by circumstances beyond their control from completing the course after it is too late to withdraw.

Academic Integrity

Students in this course will be expected to comply with the University of Pittsburgh’s Policy on Academic Integrity Code (http://www.as.pitt.edu/faculty/policy/integrity.html).

Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating the code. Furthermore,
no student may use any unauthorized materials during an exam, including notes, dictionaries, pagers, telephones, PDAs, programmable calculators, any devices that can connect to the internet. Violation of the Academic Integrity Code requires the instructor to submit an Academic Integrity Violation Report to the Dean.

If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and the Disability Resources and Services no later than the 2nd week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call 412-648-7890/412-383-7355(TTY) to schedule an appointment. The Office is located in 216 William Pitt Union.

Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to http://accounts.pitt.edu, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.)

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student’s own private use.

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<tr>
<th>Wk 1</th>
<th>In Class--Lecture</th>
<th>Lab</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>Intro to Phage and Class; lab notebooks</td>
<td>CURE survey</td>
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<td>Phage Biology II, how to collect soil</td>
<td>Serial dilutions/plating Process samples, start enrichments</td>
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<tr>
<td>Wk2</td>
<td>Paper discussion; Serial dilutions, plating,</td>
<td>Serial dilutions/plating Process samples, start enrichments</td>
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<tr>
<td>Phage/Bacteria growth and biology</td>
<td>Process samples, start</td>
<td>Hatfull Microbe paper</td>
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<td>Week</td>
<td>Activity</td>
<td>Details</td>
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<td>Wk3</td>
<td>Paper discussion</td>
<td>Look for plaques! (process more samples, plate enrichments)</td>
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<td>How to make figures</td>
<td>Look for plaques, Plaque purification; empiricals</td>
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<td>Wk4</td>
<td>Experimental controls</td>
<td>Set up web plates</td>
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<td>Calculations</td>
<td>Flooding plate, titering</td>
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<td>Wk5</td>
<td>QUIZ</td>
<td>Central Dogma Catch-up</td>
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<td>Wk6</td>
<td>Restriction enzymes</td>
<td>DNA extraction</td>
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<td>Paper discussion</td>
<td>Restriction digests, pour gel</td>
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<td>Wk7</td>
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<td>Run gel of digests</td>
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<td>EM lecture</td>
<td>QC of DNA for sequencing</td>
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<td>Wk8</td>
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<td>EM</td>
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<td>Wk9</td>
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<td>EM</td>
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<td>Group discussion of hyp.</td>
<td>EM (if necessary)</td>
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<td>Wk10</td>
<td>QUIZ</td>
<td>Abstract due</td>
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<td>Additional wet lab time—phage biology</td>
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<td>Wk11</td>
<td>Abstract writing</td>
<td>80 phage paper?</td>
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<td>Wk12</td>
<td>Paper discussion</td>
<td>Intro to Genomics</td>
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<td>Wk13</td>
<td>BLAST, DNA Master, phagesdb (computer lab)</td>
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<td>Wk14</td>
<td>Work on projects</td>
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<td>Wk15</td>
<td>Final Presentations</td>
<td>CURE SURVEY</td>
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