Biology 171L
Syllabus
<table>
<thead>
<tr>
<th>Week Of</th>
<th>LAB #</th>
<th>LAB TITLE*</th>
<th>HOMEWORK DUE</th>
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<tbody>
<tr>
<td>Aug 25</td>
<td>1</td>
<td>Syllabus and Introductions, Assessment, Library Introduction, Intro to Scientific Writing</td>
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<tr>
<td>Sep 1</td>
<td>NO LABS</td>
<td>Holiday: Martin Luther King, Jr.</td>
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<td>Sep 8</td>
<td>2</td>
<td>Intro to Data Analysis and Experimental Design</td>
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<td>Sep 15</td>
<td>3</td>
<td>Biological Membrane Integrity, Part I</td>
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<td>Sep 22</td>
<td>4</td>
<td>Biological Membrane Integrity, Part II *Critical Essay Topics Due</td>
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<tr>
<td>Sep 29</td>
<td>5</td>
<td>Respiration of Sugars in Yeast *Seman Review #1 Due (TED talk)</td>
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<tr>
<td>Oct 6</td>
<td>6</td>
<td>Catalase Activity of Hydrogen Peroxide in Yeast *Your Inner Fish Discussion Ch. 1-3</td>
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<td>Oct 13</td>
<td>7</td>
<td>Effect of Light on Photosynthesis *Your Inner Fish Discussion Ch. 4-5</td>
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<td>Oct 20</td>
<td>8</td>
<td>DNA Extraction and Analysis *Seman Review #2 Due</td>
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<td>Oct 27</td>
<td>9</td>
<td>Mendelian Genetics *Draft of Critical Essay Due by 5pm</td>
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<tr>
<td>Nov 3</td>
<td>NO LABS</td>
<td>Holiday: Election Day</td>
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<td>Nov 10</td>
<td>NO LABS</td>
<td>Holiday: Veteran’s Day</td>
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<td>Nov 17</td>
<td>11</td>
<td>Population Genetics *Your Inner Fish Discussion Ch. 6-7</td>
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<tr>
<td>Nov 24</td>
<td>NO LABS</td>
<td>Holiday: Thanksgiving</td>
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<tr>
<td>Dec 1</td>
<td>12</td>
<td>Biodiversity *Seman review # 3 Due</td>
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* Labs and assignments may be subject change – additional worksheets, homework, and quizzes may be assigned as appropriate

****FINAL LAB REPORT DUE WEEK OF Dec 1 -5, 2014

TA Name: ________________________________

TA Email: ________________________________
COURSE OVERVIEW
Biology 171L is a laboratory class designed to complement the Introduction to Biology lecture class. You will be able to explore some of the concepts presented in the class, such as membrane integrity, enzyme activity and photosynthesis. Additionally, you will practice the basic skills of science. These will include developing good lab habits (especially safety), communicating through reading the scientific literature and writing in the scientific style, and identifying and formulating hypotheses.

Specifically, you will:
1. Communicate in the scientific style, through researching and reading the scientific literature and writing in the scientific style;
2. Formulate and analyze testable hypotheses and identify the experimental design;
3. Set up and run experiments, and collect the resulting data;
4. Assess your data and choose the appropriate method for summarizing those data in graph or table form using Excel;
5. Analyze and present your data; and,
6. Use good laboratory techniques, including taking good notes, accurately recording your data, and cleaning and organizing your workstations.

BIOL 171L REQUIRED TEXTS
   ©2013 | Paper; 288 pp

   ©2011 • Benjamin Cummings • Paper, 128 pp

   Reece, Taylor, Simon, and Dickey
   ©2011
   MASTERING BIOLOGY COURSE ID: MBSQUAIR38498

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LABORATORY POLICIES

The purpose of this course is to give you hands-on, practical experience in the practice of science, with methods and practices shadowing the scientific research currently conducted by laboratory scientists. You will be practicing the important skills that make research successful:

- Researching background material before and after labs
- Reading through protocols in preparation for labs
- Mastering lab techniques and equipment
- Demonstrating reasoning and critical thinking skills
- Exercising safety precautions and adhering to safety regulations
- Documenting results and observations

One of the primary goals of this course is to help you to become an “active” learner. You will be asked to engage in your own learning, through determining the objectives for each lab and using the manual to address those objectives. Your TA is present to assist and support you in your search for answers. Ultimately, how much you get out of this course lies with you. You are responsible for your success. And part of that responsibility is understanding the expectations you are being held to. If you are ever uncertain of the expectations of a given assignment, be sure to ask your TA for clarification.

A. GRADING

Your final grade will be determined in the following way:

1. MasteringBiology 25% of your grade
2. Homework 45% of your grade
3. Final Lab Report 15% of your grade
4. Lab Skills 10% of your grade

Student achievement in this lab is designated by the following grades: A, (high achievement); B, (meets expectations); C, (below expectations); D, (inadequate performance); F (failure). No “+” or “-” grades will be assigned. Grades will not be curved.

Biology majors are required to maintain a grade of C or higher for this lab to be accepted for graduation requirements. Late work will not be accepted for any reason.

Mastering Biology 25% of Final Grade

MasteringBiology is an online resource for both learning and assessment. You will have homework to complete each week from MasteringBiology, therefore, it is essential that you sign up for and learn to use MasteringBiology as soon as possible. MasteringBiology homework is assigned in the first week (first assignments due Jan 26). Assignments will cover a range of material, including concepts for the lab, library skills and reading the scientific literature.

In general, MasteringBiology Homework will be due at midnight on the Sunday before the week of the appropriate lab.

The single biggest problem that students run into is not having the correct system settings for Mastering. You can save yourself a lot of headaches by checking the system requirements here.

-4-
Neither the lab coordinator nor your TA can resolve system problems with MB. Expect assignments to take approximately 1 hour to complete – plan ahead so that you can resolve problems before the due date!!

**Homework 45% of Final Grade**

Communicating the findings of their research is an important skill that scientists use on a regular basis. You will have many opportunities to practice writing in the scientific style. You will also have a variety of other types of assignments designed to help you develop other skills, such as data summary and presentation.

Written assignments must be typed using Times New Roman 12pt font, double-spaced, and 1” margins. You must also adhere to any other guidelines provided by your instructor. Your written work must represent your original work and thinking and all sources used to supplement the your finding must be correctly referenced. Additional sources beyond the manual and lecture textbook must be used. All sources must be cited correctly. Please see notes about Academic Dishonesty at the end of the syllabus.

Homework will be collected at the start of class and emailed submissions will not be accepted (exception: see Unplanned Excused Absence Section). When submitting your homework, please put your name, your TA’s name and your lab section on the back of your summary in the upper right hand corner of the page. This is done so your TA can grade your summary and then seal it with a staple or tape so others cannot see your grade. We strictly comply with University regulations requiring confidentiality of student grades.

You will be required to complete 3 reviews of seminars. The first review will be of a biology related TED talk [http://www.ted.com/talks](http://www.ted.com/talks), the second review will be of any biology related Tester Symposium presentation [http://manoa.hawaii.edu/biology/testerinfo](http://manoa.hawaii.edu/biology/testerinfo), the third review can be of a seminar of your choosing. The third review can be from any department as long as the seminar topic is related to biology. At the top of the page include the seminar title and the name of the presenter. I expect each review to be no longer than one page and include a brief summary and analysis of the topic, whether you agree/disagree with the speaker, and good/bad elements of the presentation itself. All of this information must be woven into a cohesive summary that is well written and edited.

For your final project you will have to write an additional “Critical Essay”. This is a common form of communication in higher level classes and in the real world. Requirements and format for this essay will be covered in class and the topic is of your choosing. A printed paragraph outlining your topic, the explicit question that you will address and why it is interesting, as well as at least 3 primary journal articles related to the topic is due on February 11th. A draft of your critical essay will be due on March 25th. This draft must include at least 5 primary journal articles and be between 3 and 5 pages long. This draft should be e-mailed to me (mcolvin@hawaii.edu) on March 25th by 5pm since there is no lab meeting that week. I will make comments on this draft and return it to you before Nov. 26th. The final critical essay (with comments incorporated) is due on May 6th e-mailed to me by 5pm.

**Late Work - No** late work will be accepted in this lab for any reason.
Final Laboratory Report 15% of your final grade
You will be required to turn in one, full laboratory report that includes references to the published literature, correctly summarized data, and well-developed introductions and conclusions. Throughout the semester you will be learning and practicing how to search and cite the scientific literature, summarize and analyze your data, and write the individual parts of a lab report, which mimic the elements of a scientific research paper. You will prepare two drafts that will be evaluated, one by your peers and one by your TA. Comments provided on each draft will help you to improve your final paper, which will be submitted for this part of your grade.

Due in the last week of lab, April 28 - May 2, 2014.

Lab skills/ preparedness 15% of final grade
You will be evaluated weekly on your readiness and behavior during class. This assessment will encompass your:

- Notebooks*
- Attendance (more info below)
- Prompt arrival to class and submission of required assignments
- Possession of appropriate attire and lab safety gear (see SAFETY below)
- Conduct, particularly as it related to you adhering to Lab Safety guidelines during labs (see SAFETY below)
- Attentiveness to instructions and class information
- Proper clean-up of area and replacement of materials that were used

*The lab notebook is one of the most important possessions of a scientist. It provides a record of the scientist’s thoughts and ideas, their protocols, and the results of their experiments. Taking good notes and accurately recording the data you collect are some of the most important skills you will use as a scientist.

You will be required to maintain a lab notebook for all labs that have an experiment (Labs 3-7). The notebook can be either a bound, lined, hardcover notebook, or a 3-ring binder. Whichever method you choose, you will be required to keep your class notes, protocols, and data and observations. A template is provided on Laulima for you to follow. Your TA will give you further instructions to help clarify their expectations. Notebooks will be viewed by the TA throughout the semester, so you must be prepared to show it at any time.

B. ATTENDANCE

You are expected to attend ALL classes. There are multiple sections of this lab on various days but you are only allowed to attend the class that you are registered for. Do not show up for another lab without pre-approved authorization from the TA for that class and your TA. You will be turned away. Even if the TA allows you to stay, any work done during the lab will receive no credit if you do not have not previously obtained permission from your TA.
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EXPECTED ABSENCES = Classes you are aware of beforehand that you will miss. E.g., a trip that conflicts with one of your scheduled classes.

If you already know you have a conflict with a class in the upcoming semester, let your TA know RIGHT AWAY. By registering for this course, you have committed to showing up for these classes and fulfilling your obligations.

Excused Absence:
- If your absence is approved, you and your TA will make arrangements for you to attend an alternate lab for that same week so you receive credit. You must make up the lab that same week. Your assignments due that week will still be accepted, but you will be required to submit those assignments at the same time as your registered class (arrange with TA).

Unexcused Absence:
- If your absence is not approved and you still choose to miss class, you will receive no credit for that class and any missed work. You will not be allowed to attend another section that week or make up that lab. Assignments (lab summaries) will not be accepted by alternate means, they are still due when they are collected at the beginning of class. Thus, an unexcused absence for one class will mean that you receive no credit for TWO lab summaries.

UNEXPECTED ABSENCES = Missing class at short notice for unforeseen reasons e.g., falling sick. If you miss class unexpectedly, perhaps due to sickness, you must still communicate with your TA quickly and be prepare.

Excused Absences
- If you missed class for a legitimate reason, you must be able to provide documentation as proof for the reason behind your absence; e.g., a written doctor’s note. Without documentation, your absence will be deemed unexcused (see below).

- All assignments due for that class must be emailed to your TA (email time stamp will be documentation that you fulfilled this requirement) before the start of class.

- Also, communicate with your TA when you might be able to attend another lab session that week (days and times). Your TA will make arrangements with the other TA and let you know what session you can attend. In summary,
  - email your TA before start of class with assignments due and reason for absence
  - obtain and provide documentation for reason of absence
  - immediately make arrangements with TA on attending another lab class that week

Unexcused Absences
- If you missed class and are not able to legitimate reason or provide documentation, you will not be allowed to make up the missed lab. You are not allowed to attend another lab session if not already approved by your TA. And, if you do attend another lab without authorization, you will not receive any credit for work done in that lab. You will receive no credit for work due at the beginning of the missed lab and all work stemming from the missed lab.
C. PREPAREDNESS:

You are responsible for being on time and prepared at the start of your lab session. Assignments (like lab summaries) must be printed, assembled, and stapled prior to and handed in at the immediate start of class. **Late work will not be accepted for ANY reason.** Printers will fail. Ink will run dry. You must be prepared to have your work completed early enough to adjust to any challenges that might arise.

And if you are late to class, then your work is late and will not be accepted.

You are expected to be able to walk in, follow your lab protocol, find the materials and equipment, carry out the lab and clean up unassisted. However, we will not let you flounder, the TAs are present to help when needed.

You will also be required to be dressed appropriately with correct safety gear and aware of safety regulations to which all labs adhere.

D. SAFETY EQUIPMENT AND REGULATIONS

Laboratories are under a different set of regulations than a regular classroom. Laboratories are typically hazardous working environments. Consequently, the risks to your safety are higher than in a regular classroom, even when no experimentation is taking place. In order to minimize risk and maintain a safe working environment, you will be expected to dress appropriately and act appropriately, or you will be asked to leave.

Safety gear
Failure to come to class without appropriate personal protective equipment (PPE) means you will not be allowed to participate in the class (i.e., you will be sent home) and will receive a zero.

**Closed-toed, covered shoes:** Always required. Liquid must not be able to penetrate your shoes. Canvas and/or ballet-style flats are not acceptable.

**Lab Coats:** Required for all lab experiments. Must be fully buttoned while you are in the classroom.

**Long pants:** You must wear pants that are long enough to cover your knees.

**Safety gloves:** Required for lab experiments. Disposable nitrile gloves recommended. Latex is not recommended as some of your fellow classmates may have latex allergies. **Reusable gloves are not allowed.**

**Safety goggles:** Required for lab experiments unless TA notifies you otherwise. If you wear prescription eyeglasses, safety goggles must be worn over them.

Safety Guidelines for the Classroom
- No food or beverages can be consumed in the classroom at any time.
- No gum is allowed.
- Wear the appropriate lab gear (see above). As a last resort, a long-sleeved jacket that is easily removable can be substituted for a lab coat. But, because the lab coat is a required material for the
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class, you will be docked three Preparation points for that lab class.
- Do not sniff or taste any material or equipment in the classroom.
- Do not place your face over the opening of vessels that hold volatile or vaporous chemicals.
- Be aware of the location of MSDS sheets in the classroom. MSDS lists all the characteristics of chemicals you will be working with and their hazards.
- Know the location of the safety equipment in the classroom: first aid kit, fire extinguisher, eye-wash and safety shower.
- If a chemical comes into contact with your skin, remove any affected clothing and rinse with soap and water for at least 15 minutes.
- If a chemical or vapor comes into contact with your eyes, flush out with generous amounts of water for at least 15 minutes.
- Watch where you point sharp instruments, they should not be pointing at yourself or other students.
- Return all materials to the original area or container.
- Follow the disposal instructions outlined by your instructor.
- Notify your teacher if anything happens or you feel even slightly unwell. Do not take any chances or dismiss even the smallest thing.

E. ACADEMIC DISHONESTY

Academic dishonesty concerns any unauthorized assistance given or received on an assignment. This includes:
- Obtaining questions or answers on quizzes or exams from other individuals or sources without the express approval of the instructor;
- Submitting any work that is not completely yours;
- Use of sources beyond those authorized by the instructor;
- Engaging in any behavior specifically prohibited by your instructor and this syllabus;
- Plagiarism

In all cases of academic dishonesty, ALL parties involved will automatically receive zeroes for the assignment in question and may be sent to the UH Conduct Board. This applies to both the individual who received the unauthorized assistance and the person giving it, regardless of their intention or awareness of the fact.

Plagiarism will not be tolerated. Many are familiar with plagiarism as the act of copying someone else’s work (whether a fellow student’s work or a literary source), but plagiarism covers much more than that. Plagiarism is utilizing someone else’s words or ideas without giving proper credit. Any instance of plagiarism will result in a zero for that assignment with further consequences to be considered.

Please refer to the UH Student Code of Conduct for a more detailed explanation of the possible consequences of academic dishonesty.

In order to help you develop your understanding of the nature of plagiarism, you will be required to do a tutorial and print of a certificate of understanding at the following site: https://www.indiana.edu/~istd/definition.html
F. EMERGENCY EVACUATION PROCEDURES

If the fire alarm sounds, prepare to leave the room and building immediately. Do not stop to pack or pick things up. When leaving the classroom, exit to the right and meet at the designated area (the Mall between Edmondson and Bilger), or to a spot designated by Emergency Services personnel. Anyone with hearing problems or other disabilities will be helped by the TA. Once you have reassembled across the street, your TA will take attendance to account that everyone has safely evacuated. DO NOT LEAVE until your TA has taken attendance

G. EVALUATION OF YOUR TA

You will have the opportunity to evaluate your TA twice during the semester. This evaluation provides important feedback that can help your TA improve their teaching. We strongly encourage your participation to help the Biology Program maintain and improve the quality of our instruction and thus our ability to provide a better science education to you.

Please note that your comments are completely anonymous. By providing this early evaluation, you can help TAs improve their performance in the lab. Remember that your input counts and your suggestions and constructive comments will help us continually improve the quality of our teaching and ultimately, our Program.

H. COMPLAINTS OR CONCERNS

If you have any major complaints, questions, or concerns, you are encouraged to make an appointment with the lab coordinator, Cheryl Squair (squair@hawaii.edu). Whenever possible, you should try to work things out first with your TA. If you are unable to resolve the issue or still have concerns, contact the lab coordinator. It is much better to resolve issues early in the semester, than to wait until the semester is over.

Questions about grades should be addressed with your TA during office hours. If you cannot make office hours, set up an appointment with your TA. If you wish to challenge a grade, it must be submitted in writing and addressed to both your TA and the lab coordinator. In your written request, you must state:

- the question, problem, or assignment
- your answer
- the grade you received
- the reason you wish to challenge the grade.