Biomedical Sciences Lab Techniques: Course #MEDS2030C
Course Information and Syllabus 2015

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Learning Objectives: This biomedical sciences lab techniques course is designed to prepare you to be productive participants in biomedical research labs, potentially starting as early as the last part of their sophomore year. Prior biology and chemistry laboratory courses at the college level are required for participation in this course. The course is formatted in modules employing equipment and techniques commonly used in biomedical laboratories engaged in cutting edge research. The focus is on methodologies in the fields of biochemistry, molecular genetics, cell biology, and microbiology. In addition to becoming familiar with a range of equipment and techniques in these research disciplines, you will be gain experience in: (i) designing your own experiments, (ii) evaluating the data generated in their experiments, (iii) writing reports describing your results and your conclusions in standard scientific format, and (iv) giving presentations to your peers and faculty.

Because this is the first year this course is being offered, you should expect there to be some flexibility in the implementation of the modules as the course progresses and the instructors become familiar with the capabilities of the students and the pace at which they are able to progress through the experiments. To a certain extent you are yourselves guinea pigs in an experiment. We are trying to prepare you for being productive participants in a working lab where we know neither whose lab, what research project, nor what the techniques being used will be. We welcome and indeed expect feedback from you during the course itself and later after you have actually spent time in those labs.

Class Meetings & Related Activities: Labs are conducted from 2:00 - 4:50 PM on Tuesdays and 2:00 – 3:20 PM on Thursdays in room 2974 of the Cardiovascular Center (CVC) on
the medical school campus. In addition to these scheduled hours, additional lab periods may be arranged with the course instructors as needed at mutually convenient times. You are expected to attend all lab sessions. Absences will be excused only under compelling circumstances.

You will generally be working in teams of two and it is expected that you will help each other to understand and complete the experiments. Nonetheless, each student will be responsible for preparing his/her own lab notebook.

You are expected to have prepared for each lab by carefully reading the pre-lab assignments beforehand and discussing any areas of uncertainty with your lab partner or with other classmates. If, even after having worked together, you remain uncertain about any aspects of the pre-lab assignment, you may contact the instructor(s) for clarification. *N.B. There will usually be a short quiz at the beginning of the lab covering the pre-lab assignment.*

One of your intentions in the course is to have you achieve a certain level of independence in your ability to conduct experiments. To that end, we want to encourage you as much as possible to answer questions and solve problems on your own. That said, we also understand that there are times when help is both needed and appropriate. So we’ve devised a little consultation scheme by which we hope to foster independence without creating frustration or avoidable mistakes. The details are provided in an appendix which appears at the end of this syllabus entitled “A Consulting Account for Lab Questions.”

**Lab Safety:** Based on the course prerequisites, it is our assumption that you have already learned the elements of lab safety. If you feel this is not the case, please notify us immediately and we will arrange for remedial instruction. In addition, we are posting on Blackboard under the “Course Documents” tab a set of lab safety instructions. You should read through these as part of your pre-lab assignment before the first meeting of the lab on Tuesday, August 25, 2015. *You will be quizzed on this information during the first lab.*

In order to avoid presenting with an overload of lab safety information at the beginning of the course, additional safety notices may be posted as the need arises. You will be notified whenever this occurs.

**Grading Policy:** The relative weights given to each of the assessment modalities will be:

<table>
<thead>
<tr>
<th>Assessment Modality</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Lab Notebooks</td>
<td>50%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Presentation of Experiment</td>
<td>10%</td>
</tr>
<tr>
<td>Development of New Lab Module</td>
<td>20%</td>
</tr>
<tr>
<td>Extra credit* (up to a max of)</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Extra credit can be earned in a variety of ways. For example: (i) by sharing with the class information you have obtained through non-required readings or other sources*
which enriches our learning experience; (ii) by providing explanations for results that were puzzling to others in the class; (iii) by contributing in other ways to making the course more valuable and interesting. To some extent determination of extra credit will be a subjective determination by the instructors.

This being the first time we have taught the course, we cannot say with any degree of confidence what the relationship will be between the final percentage you achieve and your final grade in the course. Thus, it is quite possible that grades will be determined on the basis of a curve. We are, however, committed to a minimum grade range in which overall averages in the ranges listed below will be graded as follows:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90% to 100%</td>
<td>A/A-</td>
</tr>
<tr>
<td>80% to 89%</td>
<td>B+/B/B-</td>
</tr>
<tr>
<td>70%-79%</td>
<td>C+/C/C-</td>
</tr>
<tr>
<td>60% to 69%</td>
<td>D/D-</td>
</tr>
<tr>
<td>&lt;60%</td>
<td>F</td>
</tr>
</tbody>
</table>

The ranges may be extended to account for natural breaks in the distribution of scores or to compensate for significant variations in the difficulty of the grading on individual assessment components. In no case will a student’s grade be decreased based on the above scale.

**Lab modules and dates:** See the Lab Schedule posted on Blackboard under the Course Documentstab. As previously noted, this being the first iteration of this course, changes may be made to this schedule as the course evolves.

**Snow Days:** University policy states that “the College of Medicine never closes”, but this refers to crucial components such as the hospital and some research functions. When University classes have been cancelled, our class and other College of Medicine classes are also cancelled. In addition, weather may sometimes prevent lecturers or students from safe and timely arrival – thus, if you have any doubts about whether the course is meeting, check Blackboard Announcements for last-minute updates early in the morning on class days, to see if there has been a last-minute cancellation.
Appendix

A Consulting Account for Lab Questions
(Draft 07/29/15)

Each Team (i.e. pair of students) starts off with $1000 in a consulting account which they can use to ask the instructors questions. Charges for answers will vary according to the schedule below. As a general rule the questions should be submitted through Blackboard although they can also be asked in class.

- Information the instructors should have provided but forgot to ............ No charge
- Information the students could easily have obtained on their own .......... $50
- Information the students should have known based on material available from reading assignments or previous experience in this course ........... $50
- Information that could have been obtained but which would have required only a modest effort by the student .......................... $20
- Questions we are unable to answer ......................................... No charge

Students can have additional dollars deposited into their consulting accounts by sharing interesting or important information with the rest of the class. The amount credited to the account will be a function of the value of the contribution (as determined by the instructors).