Instructor: Michelle A. Steiger, Ph.D. & Dr. Monica Galaz-Montoya  
E-mail: steigerm@stthom.edu & galazmm@stthom.edu  
Office phone #: 713-831-7231 (for Dr. S.)  
Lab meeting times & place: Monday (section A), Tuesday (section B) & Wednesday (section C)  
2:10 PM – 5:00 PM in Robertson B112 (the basement lab space)

Grading:
Lab grade

10% lab notebook – info for this is given on the last page of this syllabus  
10% pipette & sterile technique quiz  
30% lab quizzes  
30% protein purification plan, progress reports & presentation  
10% kinetics report & data submission  
10% Lab preparedness, lab safety and citizenship

Total: 100%

Letter grades for the lab will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 - 92%</td>
</tr>
<tr>
<td>A-</td>
<td>91.9 – 90%</td>
</tr>
<tr>
<td>B+</td>
<td>89.9 – 87%</td>
</tr>
<tr>
<td>B</td>
<td>86.9 – 82%</td>
</tr>
<tr>
<td>B-</td>
<td>81.9 – 80%</td>
</tr>
<tr>
<td>C+</td>
<td>79.9 – 77%</td>
</tr>
<tr>
<td>C</td>
<td>77.9 – 72</td>
</tr>
<tr>
<td>C-</td>
<td>71.9 – 70%</td>
</tr>
<tr>
<td>D</td>
<td>69.9 – 60%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60%</td>
</tr>
</tbody>
</table>

A failing grade will automatically be given to any student who:
1. does not complete 2 or more labs  
2. turns in a lab report or any part of a lab write up that is not that individual’s own work.

Pipette Quiz: everyone must complete the pipette quiz by 1/27/17 which is over pipetting and using sterile technique. An overview of these procedures as lab expectations will be given in the first lab meeting. You will have 30 minutes to complete this quiz and you will sign up for a quiz time at the first lab meeting.

Lab Quizzes: for each lab in the first part of the course, there will be a quiz issued as either a take-home quiz or an in-class quiz. The in-class quiz will be given at the start of lab and you will have 10 minutes to complete this quiz. The in-class quiz may be given as a closed or open notebook quiz. The quiz will cover the previous week’s lab and the lab experiment for the current week. This quiz is being done instead of a formal post lab report.

Lab preparedness, lab safety & citizenship: It is expected that all students will come to lab on-time and be prepared. Please note that you will be graded on how prepared you appear to be for each lab experiment. For each experiment, it is expected that you will have read all of the procedures for each lab exercise prior to the start of lab and have the appropriate entries in the lab notebook prior to the start of lab. In addition, strict adherence to the safety procedures and appropriate lab attire, including lab goggles and lab coat are required at all times in the lab. Upon leaving the lab for the day ensure your work area is clear, clean and all glassware has been cleaned and properly stored. If upon inspecting the lab at the end of a lab day it is unclear which
individuals did not properly clean up at the end of lab, all lab students will receive points deducted for their lab citizenship grade for lab that day.

**Late assignments:** Are accepted but the maximum credit possible for any late work is one-half of the full credit that the assignment was initially worth. No work will be accepted for credit after 5 pm on April 28, 2017.

**Late arrival policy:** Lab starts promptly at 2:10 pm any student who is late to lab will be penalized a minimum of 2 points on their lab preparedness grade for every 5 minutes they are late

**Course objective:** In this course students will gain hands-on experience with the important techniques used in the laboratory study of biochemistry. Particular focus will be on protein purification, column chromatography and enzyme kinetics.

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**Course outline**

This schedule may change at the discretion of the professors and all changes will be announced in lab or on Blackboard.

<table>
<thead>
<tr>
<th>DATE</th>
<th>Lab Experiment</th>
<th>Quiz/Assignment Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/23, 24 &amp; 25</td>
<td>Safety overview and course introduction SAFETY QUIZ!</td>
<td>Safety quiz – you must pass this with 100 % grade prior to the next lab meeting</td>
</tr>
<tr>
<td>1/30, 31 &amp; 2/1</td>
<td>Pipette Quiz Computer assignment – a take home lab assignment worth one quiz grade.</td>
<td>You will have 20 minutes to complete your individual pipette quiz at the time you signed up for.</td>
</tr>
<tr>
<td>2/6, 7 &amp; 8</td>
<td>Amino acid analysis and identification</td>
<td>The quiz will be given in lab &amp; will be closed notebook. Hand in your completed computer assignment.</td>
</tr>
<tr>
<td>2/13, 14 &amp; 15</td>
<td>Spectrophotometry, protein concentration &amp; Beers Law Finish amino acid analysis</td>
<td>This will be a take-home quiz due at the start of lab on your lab day.</td>
</tr>
<tr>
<td>2/20, 21 &amp; 22</td>
<td>Column chromatography</td>
<td>The quiz will be given in lab &amp; you will be allowed to use your notebook only (no separate papers are allowed).</td>
</tr>
<tr>
<td>2/27, 28 &amp; 3/1</td>
<td>Enzyme kinetics project using pure protein</td>
<td>This will be a take-home quiz due at the start of lab on your lab day.</td>
</tr>
<tr>
<td>3/6,7 &amp; 8</td>
<td>Enzyme kinetics project using pure protein and inhibitor analysis</td>
<td>The quiz will be given in lab &amp; you will be allowed to use your notebook only (no separate papers are allowed).</td>
</tr>
<tr>
<td>3/13, 14 &amp; 15</td>
<td>Spring break – no lab</td>
<td></td>
</tr>
<tr>
<td>3/20, 21 &amp; 22</td>
<td>Protein purification project – Preparation</td>
<td>Hand in a full copy of your project plan.</td>
</tr>
<tr>
<td>3/27, 28 &amp; 29</td>
<td>Protein purification project</td>
<td></td>
</tr>
<tr>
<td>4/3, 4 &amp; 5</td>
<td>Protein purification project</td>
<td>Hand in your 1&lt;sup&gt;st&lt;/sup&gt; progress report</td>
</tr>
<tr>
<td>4/10,11 &amp; 12</td>
<td>Analysis of protein purification Protein concentrations Protein analysis – gel electrophoresis for protein purification</td>
<td>Hand in your 2&lt;sup&gt;nd&lt;/sup&gt; progress report</td>
</tr>
<tr>
<td>4/17, 18 &amp; 19</td>
<td>Analysis of protein purification</td>
<td>Hand in your 3&lt;sup&gt;rd&lt;/sup&gt; progress report</td>
</tr>
<tr>
<td>4/24, 25 &amp; 26</td>
<td>Presentations on purification project</td>
<td></td>
</tr>
</tbody>
</table>
Important info: Students who need to leave a note or any assignments for the instructor are asked to leave these items in the appropriate mailbox in the science office (ROB 100). The instructor will post reminders, lab assignments, lab protocols and important notices on Blackboard.

Biochemistry Lab - Chem/Biol 3134
Spring, 2017

Lab notebook guidelines

Purpose of the notebook: A lab notebook is a complete and accurate record of your lab work. It should serve as an official source of what the student did in the lab and what the student observed.

Notebook: A stitched (permanently bound) notebook with dimensions of 9.75 by 7.5 inches is the desired lab notebook. The front cover needs to indicate the student’s name and course number (with section letter). The first page is the title page and needs to indicate the student’s name, the course title, the course number (with section letter). The next two pages are to contain the table of contents, which indicates the experiment title and page numbers for that experiment.

The lab notebook entry for each experiment will have the following format:

A Table of contents entry: This will have the name of the experiment and notebook pages that correspond to this lab.

Title & Date: The name of the experiment and the dates when this lab was carried out.

Purpose or Objective: One sentence that explains the goal or outcome of the experiment for that us being done.

Procedure: This may be written by you or be a copy of what is provided by the instructor for the lab. For some experiments you will be responsible for coming up with your own procedure and this procedure (with references where appropriate) must be fully outlined in your notebook.

Data & Observations: This is the most important part of the lab write-up. The student is to make entries directly into the notebook as the experiment is going. All observations should be written here in blue or black ink – pencil entries will result in a deduction from you lab grade and details including what you saw (for example: “the liquid after boiling appeared cloudy”) and what happened (for example: “the flask fell over and liquid was lost after dissolving solid A”) are expected to appear. Any graphs or spectroscopic read-outs should be stapled / taped / pasted directly into the notebook as part of this section of the lab write-up. ALL CALCULATIONS MUST BE WORKED OUT AND APPEAR IN THE LAB NOTEBOOK (or at least one sample calculation with all steps shown). Calculations may be done on Excel but at least one example of these calculations must be worked out with all work shown in the notebook.

Notebooks will be collected at various times throughout the semester. Please note that the instructor can request notebooks be turned in for grading at any time during the semester without any prior notice.

NOTE: At the start of each lab it is expected that the lab for that day will have a title, date, purpose and procedure already attached and in the notebook.