**Course Title:** General Biochemistry Lab I Fall 2018 (50:115:407)

**General Information:**

Instructor: Jinglin Fu, Ting Zhang

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Lab time: Section 01 1:20 p.m. – 4:20 p.m., Thursday

Section 02 8:00 AM - 11:00 AM, Friday

Section 03 12:30 PM - 3:20 PM, Monday

Location: Science Building #329

Office hours: Wednesday free period (12:20 AM to 1:20) or by appointment

Course pre/co - requisites: GenBiochem I lecture

Required Text: No special text books. All the lab instruction and protocols will be posted on the Sakai.

Biochemistry Lab I is a prerequisite for taking Biochemistry Lab II.

**Course Description** This course is designed to give students lab experience in some of the techniques used in biochemistry/ biotechnology research. We will focus on the practical use of these techniques, as well as the data analysis that can be used to identify/quantify substances and/or predict specific experimental outcomes.

**Learning Goals:** Students will be able to identify different biomolecules (e.g. DNA and protein) and determine their concentrations by spectrum method, perform kinetical analysis of enzyme reactions and inhibition, and practice biomolecule separation with multipole chromatography methods of ion-exchange, size-exclusion and TLC.

**Lab Safety** Students are expected to abide by the general lab safety rules as reviewed by the safety video. **If you have not watched any lab safety video before, talk to the instructor!**

**Lab coats, Goggles and gloves** are required in the lab. This is for protecting yourself. Full eye shield goggles are required, not the glasses type shields. Nitrile gloves are provided in the lab with small, medium and large size.

**Closed-toe shoes are required by the lab. Wear open-toe shoes (e.g. sandal) will be forced to leave the lab, and accounted as an excused absence!**

No eating or drinking in the lab at any time!

**Cell phone and computer use:** Cell phones or other communication devices may not be used during the lab and must be silenced. During lab, cell phones may only be used in theevent of an emergency. Please notify the instructor if an emergent condition arises that requires the use of a cell phone. During lab, cell phones must remain silent and stored in your bag. **Speak on the cell phone without the instructor’s permit will result in a decrease of lab performance points! No texting message, think about what may leave on your finger!**

During lab, computers may be used only if you are doing data analysis, academic search or working on the reports. Please respect the other members of your lab and refrain from playing any music and/or videos.

**Attendance:** Attendance of all labs is mandatory*.* **Lab cannot be make-up.**

**Unexcused absence** will result in an automatic drop of one letter grade for your final grade. For example, assume a final grade of A:

* Missing one lab, Grade A -🡪 B;
* Missing two labs, A-🡪C;
* Missing three labs, A-🡪D;

**Excused absence** includes medical emergency (physician’s approval of absence) and family emergency (e.g. funeral, wedding) or other compelling circumstances that prevent your attendance in the lab; **not includes** vacation travel or parties. For excused absence, official evidences must be submitted to the instructor and better notify 24 hours before the lab class. Excused absence will not result in an automatic drop of grade.

**Absence from three (excused or unexcused) or more labs will result in a failing grade.**

**Late policy:** Late more than 10 mins will not be allowed to perform the lab. You can observe other to perform the experiment. Late more than half an hour will be counted as one unexcused absence, unless there are compelling circumstances that prevent your attendance in the lab (e.g. medical emergency). **Frequent late attendance will also affect the performance score in the final assessments and grades.**

**Assessments and Grades:**

Your final grade will be determined by your performance in the lab, notebook, lab reports, datasheet, pre-lab quizzes, and final presentation.

**Performance 20%**

**Notebook 10%**

**Pre-lab quizzes 10%**

**Lab reports or datasheet 50%**

**Presentations 10%**

**Total: 100%**

***The lab performance*** is evaluated by: How prepared you are for the lab, you attend the lab on time, understand and follow lab procedures, ability to independently finish lab calculations, how careful you are performing experiments, observing and interpreting lab results; how you contribute to a group experiment and report.

***Notebook Requirement***

Students will keep a notebook for all of the experiments except the first lab. This notebook will be used for planning experimental procedure and recording data. Before performing the experiment, the instructor needs to approve on your designed procedures. **For each lab, instructor’s signature on the notebook is required.** Each lab needs to label with title and date. The cover page is also required summarizing all the labs and pages.

***Pre-lab quizzes***

There will be 10 pre-lab quizzes to help students to understand the experiment that is going to conduct. **Quizzes will be posted online on Sakai** at least 48 hours prior the lab. Students are required to read the instruction and complete the quizzes before the lab session, and submit the printed copy to the instructor during the lab period. Fail to submit the quiz on time will result in the loss of points.

***Lab reports or datasheet***

The lab report should be a typed summary of what you did and learned in the lab. A general lab report includes Introduction, Experimental Materials and Methods, Results and Discussion. A sample lab report is posted in the Course Information section on Sakai. It is strongly suggested that you look over the sample report prior to writing your lab reports. Lab reports should be less than 10 pages. All lab reports must be submitted in electronic copies for receiving a grade in the course. Lab reports are an individual effort that displays your knowledge and understanding of the lab material. Reports must be written in your own words. **You cannot copy verbatim from any source, including other individuals in the course.** Any infractions to this rule are considered as academic plagiarism. You are welcome to consult with your lab partner or other people in the class; however, you must write your lab report as an individual effort. You must cite any references that you use in preparing your reports.

**Electronic copy of lab reports:** You must submit an electronic copy via Sakai/Assignment. **Failure to do so will result in a complete loss of report points for the lab. The electronic copy must be received before the due date.** The filename must be as follows: lab#-your name. For example, if John Doe was turning in the third lab report, he would submit a file with the name lab3-john doe. Any files submitted with an incorrect name will be rejected.

**Academic Integrity**

You are expected to do your own work and record/describe the experiments we do in your own words. Copying someone else’s procedure/data is considered as academic plagiarism.

First infraction to the rule will result in an automatic drop of the final grade.

Second infraction the rule will result in the fail of the class as well as marked with E\* (failure due to academic dishonesty).

You cannot directly copy the background or procedures on the instruction manual. Write the Lab background and methods in your own language.

Please see: <http://www.camden.rutgers.edu/RUCAM/Academic-Integrity-Policy.php> for more information about the policy.

**Waste disposal**

Only water can be directly poured into the sink. Other wastes such as salt buffer and natural biomolecules including proteins, peptides and DNA must be stored in the Biochemical Waste Container. Plastic waste including pipette tips, tubes must be deposed into Plastic Waste Container. Organic reagents, indicators and dyes must be disposed into the specific waste containers, stored in the hood in SCI-329.

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| S01 | S02 | S03 | **General Biochemistry Lab I - Tentative Schedule** | | |
| **Date** | | | **Experiment** | | **Report Type (R/Q/D/P)** |
| 6-Sep | 7-Sep | 10-Sep | Course Introduction, and Basic Methods and Calculations | | D |
| 13-Sep | 14-Sep | 17-Sep | Buffer Preparation and pH Measurement | | R/Q |
| 20-Sep | 21-Sep | 24-Sep | Quantitative Determination of Proteins by Spectrophotometry | | R/Q |
| 27-Sep | 28-Sep | 1-Oct | Quantitative Determination of DNA and Melting Temperature | | R/Q |
| 4-Oct | 5-Oct | 8-Oct | DNA Extraction from Strawberries | | D/Q |
| 11-Oct | 12-Oct | 15-Oct | Ion Exchange Chromatography | | D/Q |
| 18-Oct | 19-Oct | 22-Oct | Gel-filtration Chromatography | | D/Q |
| 25-Oct | 26-Oct | 29-Oct | Thin Layer Chromatography (TLC) | | D/Q |
| 1-Nov | 2-Nov | 5-Nov | Special Topic Lecture | | None |
| 8-Nov | 9-Nov | 12-Nov | Introduction to Enzymology | | R/Q |
| 15-Nov | 6-Nov | 19-Nov | Michaelis-Menten Enzyme Kinetics | | R/Q |
| 20-Nov | 21-Nov | 26-Nov | Enzyme Inhibition-I | | None |
| 29-Nov | 30-Nov | 3-Dec | Enzyme Inhibition-II | | R/Q |
| 6-Dec | 7-Dec | 10-Dec | Final Presentations | | P |
|  | | | |  | |

R = Lab Report D = Datasheet P = Presentation Q = Pre-lab Quiz

After reading the syllabus, please sign at the bottom to show your understanding and compliance to follow the lab rules.

Name: Signature:

Date: