**BIOCHEMISTRY LABORATORY (CHEMISTRY 376) – SPRING 2021**

**TUESDAY SECTION**  
Recitation: Online 1:40 PM - 2:30 PM; LAB: 2:40 – 5:30 PM  
Instructor: Angela Fried (afried@gradcenter.cuny.edu)

**FRIDAY SECTION**  
Recitation: Online 8:15AM – 9:05 AM; LAB: 9:15 AM – 12:05 PM  
Instructor: Preeni Abeyweera (tpabeyweera@gmail.com)

<table>
<thead>
<tr>
<th>Tues</th>
<th>Fri</th>
<th>Laboratory Exercise (all are on-line)</th>
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<tbody>
<tr>
<td>2/2</td>
<td>1/29</td>
<td>Bioinformatics 3 hrs (Handout)</td>
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<tr>
<td>2/9</td>
<td>2/5</td>
<td>Bioinformatics 3 hrs</td>
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<tr>
<td>2/16</td>
<td>2/19</td>
<td>Bioinformatics 3 hrs</td>
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**During these 3 weeks you will perform the following exercises:**

1. Find databases and analyze a DNA sequence
2. Sequence homology, plasmids & cloning; analyze restriction fragments
3. Compare and identify related protein sequences; multiple sequence alignment
4. Problem-based learning module: In silico analysis of DNA and protein sequences.

From 5 unknown sequences, determine segments having sequence homology, use BLAST to validate existence, identify putative proteins;

2/23  2/26  
Labster modules: mRNA extraction, DNA Sequencing; on-line discussion 3 hrs

3/2  3/5  
Plasmid restriction analysis; 3 hrs; see Lab Manual

3/9  3/12  
The basics of primer design for PCR; 3 hrs  
(analysis and mutagenesis), PCR analysis of gene expression in cells (RT-PCR)  
https://www.youtube.com/watch?v=QwT-Tj89VLo  
Labster module: Polymerase Chain Reaction

3/16  3/19  
Separation of proteins by chromatography (Labster module: Protein Synthesis); 3 hrs  
Size exclusion chromatography; analysis of data

3/23  3/26  
Affinity chromatography: Isolation and assay of lactate dehydrogenase; 3 hrs

4/6  4/9  
SDS-PAGE of column fractions; analysis of data; 3 hrs

4/13  4/16  
Antibodies as tools (Labster modules: ELISA, Gene Regulation/Western blot); 3 hrs

4/20  4/23  
Enzyme Kinetics – Week 1 (Labster module); 3 hrs

4/27  4/30  
Enzyme Kinetics – Week 2  Assays of glucose oxidase; analysis of data 3 hrs

5/4  5/7  
Introduction to Molecular Modelling - Week 1: Analysis of protein structure (pyMOL) 3 hrs

5/11  5/14  
Introduction to Molecular Modelling - Week 2: Analysis of protein structure (pyMOL) 3 hrs

**REVIEW**

ALL RECITATIONS WILL BE CONDUCTED ON-LINE AND WILL BE RECORDED. It is strongly recommended that students attend all live on-line sessions.

**ASSESSMENT**  
For each lab exercise, a formal written report or set of responses to on-line exercises will be due 1 week following the conclusion of each module. Quizzes will be given at the discretion of the instructor. The course grade will
be based on: Reports (40%), Final Exam (30%), Quizzes (25%), and Participation (5%). A final exam will be given at a date and time to be announced later.

**REASONABLE ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**
Students with disabilities needing academic accommodation should register with the Special Services Office by emailing QC.SPSV@qc.cuny.edu.

For more information about services available to Queens College students, visit the Office of Special Services website: [https://www.qc.cuny.edu/studentlife/services/specialserv/Pages/default.aspx](https://www.qc.cuny.edu/studentlife/services/specialserv/Pages/default.aspx).

**CUNY POLICY ON ACADEMIC INTEGRITY**
Academic dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension, and expulsion as provided at: [https://www.cuny.edu/about/administration/offices/legal-affairs/policies-procedures/academic-integrity-policy/](https://www.cuny.edu/about/administration/offices/legal-affairs/policies-procedures/academic-integrity-policy/).

**ONLINE ETIQUETTE**
Please maintain a professional demeanor when posting online. You can be respectful even when you have a difference of opinion. Treat others as you'd want to be treated yourself. Don't type in all caps, as that is the online equivalent of shouting. If you need to emphasize a word or phrase, use italics.

_Students who participate in this class with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the class to refer to, including those enrolled students who are unable to attend live. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live._

**COUNSELING SERVICES**
Counseling Services are available to any Queens College student. This office assists students with personal concerns that can affect their enjoyment of and success in college. Services are free and confidential. All sessions take place on Zoom or by Telephone, depending on student preference. To make an appointment, students should call 718-997-5420 and leave a message with their phone number and CUNY ID. They may also e-mail counselingservices@qc.cuny.edu.