The goal of the laboratory section of Biotechnology is to introduce you to various techniques used in the biotechnology field, enhance your overall learning experience for this course and help you grasp concepts discussed in the lecture. The lab exercises initially focus on fundamental techniques, then gradually advance to more specific and elaborate procedures. Many of the procedures and principles learned are widely applicable in the biotechnology field.

Laboratory Manager: Celeste Chong-Cerrillo, Ph.D.
Office Hours: Zoom ‘meeting room’ by appointment
Email: chongcer@usc.edu (the subject line should state: “BISC 406”)

Laboratory Instructor (LI): TBD
Email: ______________@usc.edu
Office Hours: TBD

Required Material: Personal computer with internet access and webcam
Zoom 5.0 software

Websites: Blackboard (Bb) (https://blackboard.usc.edu/)

Time Zone: All indicated times are Pacific Daylight Time (PDT) until Nov. 1, 2020 where it will then be Pacific Standard Time (PST).

Laboratory Grade
The laboratory grade, worth 255 points and accounting for ~38% of your total course grade, breaks down as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Labster Simulation Quiz (10 points each)</td>
<td>110</td>
</tr>
<tr>
<td>9 Mini Reports (10 points each)</td>
<td>90</td>
</tr>
<tr>
<td>RFLP Unknown Report / Identification</td>
<td>25</td>
</tr>
<tr>
<td>2 Lab Exams (15 points each)</td>
<td>30</td>
</tr>
<tr>
<td>Laboratory Total</td>
<td>255</td>
</tr>
</tbody>
</table>
Remote Laboratory Policies

Attendance
As this course is offered entirely online, we will be using Zoom 5.0 and Blackboard for most instruction and communication. You are required to attend your Lab Instructor’s Zoom lecture presentations so that you can interact with your LI and labmates. Students that cannot be present due to extreme time zone differences will be excused. All lecture presentations will be recorded.

Blackboard (Bb)
All lab-related materials and documents, Zoom links and recordings, Labster links (see below), submission of lab assignments, and administration of lab exams will be through Bb. If you have problems acquiring any documents, please let your LI or the Lab Manager know immediately.

Zoom
Please log into Zoom (using **USC credentials only**) for the class and lab sessions a few minutes beforehand. During these Zoom sessions, please keep the ringer of your cell phone either off or on vibrate.

Labster
The majority of your lab experience will be through weekly virtual lab simulations offered by Labster. The link for each week’s simulation will be available on the Wednesday before your lab session. It is highly recommended that you start and complete the simulations during your scheduled lab session so that if you have any questions or want to discuss any topics, your LI will be readily available. However, in order to accommodate time zone differences, you'll have **72 hrs from the beginning of your lab session** to complete the simulation (to 100% progress). The ‘Simulation Quiz’ points will be earned from answering questions, based on theory and results, throughout these simulations. In order to receive 100% of your quiz score, you must complete the simulation to 100% progress; otherwise, your final score will be based on the percent completed. These scores are automatically transferred to Blackboard. If you do not attempt to do your lab simulation within the 72-hr time frame, you will receive a zero (0) for that simulation.

If you cannot complete a simulation within the 72-hr time frame due to a true emergency situation or extraordinary circumstance, it will be your responsibility to submit written documentation of your excuse (what you feel is appropriate to demonstrate a legitimate reason) to the Laboratory Manager, Dr. Chong-Cerrillo, within **24 hrs** after the deadline. It will be at her discretion to determine whether your excuse is valid and whether the simulation can be made up. If documentation is not received within this time frame, you will receive a zero (0) for that simulation. Please note that if the documented excuse does not cover all three days of the assignment, your request will be denied.

Laboratory Exams

Lab exams will test your understanding and application of the topics, theory, concepts, experiments and results covered in the laboratory simulations. Lab exams will be at the beginning of the lab session, have a time limit, and only available/open for a designated time frame. You will be required to log into Zoom and have your video camera on during the entire exam for proctoring purposes. More detailed information will be provided via Bb.

After your exams have been graded, your LI will review the questions and answers during a lab Zoom session. If you feel something should be reviewed for a regrade, you must submit a thoroughly typewritten explanation of why you think your answer deserves more credit to your LI within 48 hrs after the Zoom review session. Oral and e-mail requests will not be considered. The entire question will be regraded, which may raise or lower your score.

Missed Exams

If you have prior knowledge that you will miss a lab exam for a legitimate reason, discuss the situation with the Lab Manager at least 2 weeks in advance. Be prepared to provide supporting official documentation.

If you miss a lab exam due to a true emergency or extraordinary circumstance, it will be your responsibility to submit documentation of your emergency (what you feel is appropriate to demonstrate a legitimate reason) to the Laboratory Manager, Dr. Chong-Cerrillo, within 24 hrs of the missed exam. It will be at her discretion to determine whether your excuse is valid and whether the exam can be made up or an adjusted* score from the other exam will be used in determining the grade. If documentation is not received within this time frame, or if it is deemed invalid, you will receive a zero (0) for the exam.

Laboratory Reports

All reports need to be typewritten, double-spaced (unless otherwise instructed) in a word processing program (e.g. Microsoft Word). If you need to present a table, you will also need to do it in a word processing program (not in Excel); figures can be computer-generated or can be hand-drawn, except graphs should be plotted by a computer. In addition, it is very important that you use proper English, use complete sentences, and proofread and spell check your reports. Points will be deducted for misused or misspelled words, typos, improper formatting (uppercase/lowercase, italics, subscript/superscript), etc.

Mini Reports. Mini Reports for the Labster Simulations will include answering review and/or discussion questions posted on Blackboard. Mini Reports for each Labster simulation will be due no later than 9:00 am the following Thursday.

RFLP Report. The RFLP Lab Report will include analysis of data, identification of an assigned unknown bacterial species and answering review/discussion questions posed at the end of the document. The RFLP Lab Report will be due no later than 9:00 am, Friday, Sept. 25, 2020.

*based on your performance relative to the average of the class.
Late Policy
For every 12-hour increment any report or assignment is handed in late, you will lose 10% of the total possible points [i.e., if the assignment is past 5 days (120 hrs) late, you will receive a zero (0) for that assignment]. Saturdays, Sundays, and University holidays ARE counted. The Labster simulations adhere to the 72-hr policy stated above.

Trojan Academic Integrity
Please remember that you are required to adhere to the Trojan Academic Integrity. You are NOT allowed to use someone else’s data or answers to complete any simulation or assignment. You are NOT allowed to use any external assistance, including communicating with fellow students (e.g., texting, group chats, etc.) during or after the exam, allowing another student to copy from an exam, sharing exam material with another student, possession or use of any books, notes, calculator, or other materials, and any instruments that can convey exam answers, such as cell phones, tablets, alternate computer, etc.

Blackboard Posting of Grades/Scores.
Blackboard is a convenient system to communicate scores and grades; however, those grades are not authoritative. It is the student’s responsibility to notify the LI or Lab Manager ASAP in the event of any mistakes in your posted score.

Please remember that (1) the course mean given on Blackboard is also NOT authoritative, and (2) that only the total number of points earned by the end of the semester determines your course grade. We will be glad to discuss your performance, and your possible grades, at any time throughout the course. Help provided in this way should be considered only provisional. Your later performance may change (sometimes dramatically) the best-meant extrapolation.

Academic Accommodations.
Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed. Please be sure the letter is delivered to Dr. Chong-Cerrillo as early in the semester as possible. DSP is open Monday-Friday, 8:30 am - 5:00 pm, GFS 120, Email:ability@usc.edu, Phone: (213) 740-0776.
# Biotechnology Laboratory
## BISC 406L
### Fall 2020
#### Schedule and Important Dates

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Laboratory</th>
<th>Lab Report Due Dates</th>
</tr>
</thead>
</table>
| 1  | 8/20 | Lab Orientation  
**The Fundamentals**  
Lab Safety*§  
Pipetting*§ | |
| 2  | 8/27 | Polymerase Chain Reaction (PCR)§  
Restriction Fragment Length Polymorphism (RFLP) Unknown | |
| 3  | 9/3  | Genetically Engineered Machine | |
|    |Fri, 9/4 | Last day to register and add classes  
Last day to drop a class without a mark of “W” with refund  
Last day to change enrollment option to Pass/No Pass or Audit | |
| 4  | 9/10 | FACS | |
| 5  | 9/17 | Enzyme-Linked Immunosorbent Assay (ELISA) | |
| 6  | 9/24 | CRISPR-Cas | RFLP Lab Report / ID  
9 am, Fri, Sept 25 |
| 7  | 9/29 | Course Midterm Exam | |
|    |10/1 | Signal Transduction | |
|    |Fri, 10/2 | Last day to drop a class without a mark of “W” on transcript  
Last day to change a Pass/No Pass course to letter grade | |
| 8  | 10/8 | Gene Regulation | Lab Midterm Exam |
| 9  | 10/15 | Viral Gene Therapy | |
| 10 | 10/22 | Next Generation Sequencing | |
| 11 | 10/29 | Gene Expression Unit | |
| 12 | 11/5 | Synthetic Biology§ | |
|    |Fri, 11/6 | Last day to drop a class with a mark of “W” | |
| 13 | 11/12 | Lab Final Exam | |

*Quiz score does not count towards lab grade but must be completed to 100% progress.

Documents on Bb

§does not require Mini Report