MCB 3010 Laboratory
Guidelines and Grading Policy
Spring 2020

MCB 3010 Spring 2020 Laboratory Syllabus Revisions For Remote Learning Due to COVID-19 (All Revisions are highlighted in yellow)

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I. HuskyCT:

- All laboratory documents will be posted on a weekly basis in the Laboratory Folder
  - Weekly Laboratory Exercises
  - Weekly PowerPoint presentations for each lab exercise
  - Laboratory Schedule
  - Laboratory Announcements
  - Teaching Assistant Office Hours
  - Plagiarism Policy
  - Grading Policy
  - Problem Sets

****YOU ARE RESPONSIBLE FOR PRINTING THE LABORATORY EXERCISE ON A WEEKLY BASIS, AND YOU MUST BRING A COPY TO LAB****

- Students are no longer required to a print a copy of the lab. Students should download the weekly laboratory experiments from HuskyCT, read the lab thoroughly, analyze the provided data as instructed in the lab write-up, and submit the laboratory report on HuskyCT as indicated on the Laboratory Schedule.

- The following data will be posted on HuskyCT (all students are expected to use the posted data)
  - Taq IV data will be posted by Wednesday, March 19th - Students should not use their data from the Taq IV lab
  - Taq V data will be posted by Monday, March 23rd.
  - Taq VI data will be posted by Monday, March 30th
  - Taq VII data will be posted by Monday, April 6th
  - Taq VIII data will be posted by Monday, April 13th
  - Redox Potential of Cytochrome c data will be posted by Monday, April 20th

- Content Videos will be posted for some of the remaining labs. Students are strongly encouraged to view these videos

II. Required Text:

- Carbon copy Laboratory Notebook

III. Laboratory Grading Policy:

The laboratory portion of MCB 3010 accounts for 25% of the total course grade. A uniform policy governs grading in all lab sections, as follows:

- **40% - Laboratory Reports:**

  Your grade for each laboratory exercise will include a laboratory report. Over the course of the semester, you will submit 8 laboratory reports. The laboratory report includes:

  - Answers to any pre-lab questions
  - "Lab Notebook" pages
    Lab notebook pages are not required for Taq V, Taq VI, Taq VII, Taq VIII, and the Redox Potential of Cytochrome c lab
  - Purpose or Objective of the Experiment
  - Calculations, graphs, figures, and tables
  - A **brief** evaluation of all data presented
  - Answers to the end of lab questions

  ***Lab Reports (except answers to pre-lab questions and lab notebook pages) must be submitted twice. The first is electronically by SafeAssign on HuskyCT prior to the start of the lab section, and the second is a hard copy at the beginning of the lab section on the due date. If the lab report is NOT submitted both ways (via Safe Assign on HuskyCT and hard copy at the beginning of lab), the lab report will be considered late and points will be deducted as indicated in the late policy submission on page 5.**

  Students are not required to submit a hard copy of their lab report during the remote learning process beginning March 23rd.

  The SafeAssign software is designed to scan your document for plagiarism against your peers, journal articles, and other online sources.

- **20%- Taq Polymerase Manuscript:**

You will write a brief research paper based on the Taq polymerase purification including an introduction, materials and methods and a results/discussion section. You will be given a sample of a published research paper for you to model your experimental data from the *Taq* polymerase series. You will submit the paper in the format of a manuscript for publication.
***The final Taq manuscript must be submitted to both SafeAssign on HuskyCT prior to submitting a hard copy and at the beginning of the lab section on the due date. The Taq Manuscript will NOT be accepted LATE!**

Students are not required to submit a hard copy of the final Taq manuscript

- **10%-Problem Sets /Assignments:**

Throughout the course of the semester, you will need to complete two problem sets and one assignment (Structural Lab Assignment). The questions on the problem sets will reinforce concepts covered in laboratory experiments.

The Structural Lab Assignment must be submitted on HuskyCT by the beginning of your lab the week of April 20th

- **10%- Quizzes:**

You will have a quiz at the beginning of lab. The quizzes could be on specific techniques used in lab and/or general questions on what you will be doing in lab that day. The best way to prepare for a quiz is to read the lab in advance!

Beginning the week of March 23rd, students will be required to take the weekly quiz on HuskyCT. Weekly lab quizzes must be completed on HuskyCT during your regular scheduled lab. The quizzes will only be available at a specific time during your scheduled lab period. The quiz will be available 30 minutes after the start of your regular scheduled lab and students will be given 15 minutes to complete the quiz. Students will receive a password to access the quiz. For example, if your lab section begins at 9:30am, you must take the quiz from 10am to 10:15am. If you begin the quiz at 10:05am, you will only have 10 minutes to complete the quiz. Students will not be able to access or take the quiz after the 15 minutes has elapsed and a score of "0" will be given for the quiz.

- **15% - Lab Practical**

  During the final lab period which is scheduled the week of April 27th, you will be tested on both theoretical content and technical skills that were presented and practiced throughout the semester.

  Due to courses now being administered remotely for the remainder of the semester, the Lab Practical will be taken on HuskyCT during your regular scheduled lab the week of April 27th. Students will be tested on both theoretical and technical aspects of experiments either performed or presented remotely during the semester.

- **5%-Participation:**

  Participation points will be based on the following: cooperation with peers, arriving for lab on time, and completion of the lab exercise. If you leave lab to talk on your cell phone, participation points will be deducted.

  Since you will not be attending lab for the remainder of the semester, your participation points will be dependent on if you completed the scheduled weekly quiz during your laboratory section time.

IV. Attendance Policy:

Laboratory Make-up Policy: The rescheduling of labs will only be permitted for the following reasons: illness, death in family, participation in a varsity event, and jury duty. It will not be possible to make up labs, except in other scheduled MCB 3010 laboratory sections. **You must obtain a written make-up form from Dr. Linda McCollam-Guilani in TLS 260/266 prior to attending another laboratory section.** The make-up form must be signed by the TA of the lab attended, and this signed form must be attached to the laboratory report prior to submitting the report to your TA. **The laboratory report will not be accepted without the make-up form attached!**

- If you schedule a make-up lab and attend another section, your laboratory report due that week must be submitted at the beginning of your regularly scheduled lab. You are responsible for making sure your TA receives the laboratory report at the beginning of lab, even if you will be attending another section. You may submit the laboratory report to Dr. Linda McCollam-Guilani (TLS 260) at any time prior to your regularly scheduled laboratory section.

Excused Absence Policy: **A student will only be permitted an Excused Absence for extenuating circumstances.** A student who misses a lab due to extenuating circumstances (e.g. sickness, death in the immediate family, participation in varsity event) can petition Dr. McCollam-Guilani or Dr. Landin for an Excused absence slip, obtain data from Dr. Linda McCollam-Guilani in TLS 260, and write up a laboratory report. In this case, the absence will be designated an "Excused Absence. **Absence slips must also be attached to the laboratory report or the report will not be accepted.**

- ***A student is permitted only one excused absence per semester for the reasons listed above.*** Any additional missed labs will receive a grade of zero. Waivers of this policy will only be considered in consultation with the course instructor.

Students who are not able to take the weekly lab quiz posted on HuskyCT during their regular scheduled lab at the designated time (Note: as mentioned previously, the quiz will be made available 30 minutes after the start of the lab and students will only have 15 minutes to take the quiz. Once the 15 minutes has elapsed, the quiz will no longer be available), must contact Dr. Guilani (linda.mccollam-guilani@uconn.edu) in advance.

V. Laboratory Reports/Problem Sets Submission Policy:

- **Submission of Laboratory Reports/Problem Sets** Please refer to the table below for due dates.
- **As stated previously, lab report must be submitted to Safe Assign on HuskyCT and a hard copy must be submitted to your TA!**

Students are not required to submit a hard copy of their lab report during the remote learning process which has been determined to be for the remainder of the semester

Week of	Experiment	Lab Reports/Assignments Due
1/20	**No Lab**	
1/27	Lab 1: Buffers and pH **Problem Set 1 handed out**	
2/3	Lab 2: Myoglobin Stability	Buffers and pH Lab report ***(Lab Report #1)*** Plagiarism Certificate Due
2/10	Lab 3: Kinetic Studies of Alkaline Phosphatase	Myoglobin Stability Lab report ***(Lab Report #2)*** Problem Set #1
2/17	Lab 4: Taq I Protein Assay- Induced and Non-Induced SDS-PAGE of Induced vs. Non-Induced	Kinetics Lab report ***(Lab Report #3)***
2/24	Lab 5: Taq II Heat Denaturation Pour Ion Exchange Column **Problem Set #2 Handed out**	Taq I Lab Report ***(Lab Report #4)*** including Taq Manuscript figure 1
3/2	Lab 6: Taq III Ammonium sulfate precipitation Ultrafiltration/Dialysis	
3/9	Lab 7: Taq IV Cation exchange Chromatography Protein Assay on column fractions 1 -10	Problem Set #2
3/16	***Spring Recess***	
3/23	Lab 8: Taq V SDS-PAGE of all column fractions Ultrafiltration and dialysis of pooled fractions	
3/30	Lab 9: Taq VI Assessment of Taq purification via SDS-PAGE Electroblot	Taq II,III, IV, V Lab Report ***(Lab Report #5)*** including Taq Manuscript figure 2A and B
4/6	Lab 10: Taq VII Western blot analysis PCR	Taq Manuscript- Title/Authors and Introduction without last paragraph due
4/13	Lab 11: Taq VIII Agarose Gel electrophoresis Lab 12: Structural Lab	Taq VI, VII Lab Report ***(Lab Report #6)*** including Taq Manuscript figure 3 A and B Structural Lab Assignment
4/20	Lab 13: Redox Potential of Cytochrome C (Note: this lab report is due by the beginning of your lab next week. This lab report will NOT be accepted late!).	Taq VIII Lab Report ***(Lab Report #7)*** including Manuscript figure 4
4/27	***Lab Practical***	Redox Potential Lab report due ***(Lab report #8):*** ***This lab report will NOT be accepted LATE.*** Taq Manuscript due including previously graded material. ***The Taq Manuscript will NOT be accepted LATE.***

- **Policy for Late Submission of Laboratory Reports, Taq manuscript, Problem Sets and the Structural Lab Assignment:**

  - A hard copy of all lab assignments must be turned in at the **beginning** of the lab period that they are due.
    Students are not required to submit a hard copy of their lab report or the Structural Lab Assignment during the remote learning process which has been determined to be for the remainder of the semester

  - In addition, each lab report and the Taq manuscript must be uploaded for SafeAssign to HuskyCT **prior to lab**. Lab reports are generally due the week after

the lab is performed. During the purification of Taq polymerase, lab reports are due the lab period after notable data collection is completed. Lab reports and the Taq manuscript are considered late until they are uploaded to HuskyCT and a hard copy is turned in. Students are not required to submit a hard copy of the Taq Manuscript.

- Grades for lab assignments which are handed in late will be reduced by 15% up to 3 days late (this begins 10 min after the beginning of your scheduled lab section!). If the lab report is submitted 4 to 7 days late, the grade will be reduced by 25%. **Late assignments must be handed in directly to Dr. Linda Guilani, a TA, or Lab Staff member. Late lab reports may not be e-mailed to your TA. Do not slide the late laboratory reports under any office doors!** Lab reports, problem sets, and assignments will NOT be accepted beyond one week of their respective due dates and a zero will be entered for the score.
- If you miss handing in a laboratory report because of an "Excused Absence" from lab, you should make every attempt to get the report to your TA as soon as possible; at the latest, it must be turned in during the lab following your absence.
- If you schedule a make-up lab and attend another section, the laboratory report must be submitted at the beginning of your regular scheduled lab. You are responsible for making sure your TA receives the laboratory report by the beginning of lab of your regular lab period, even if you will be attending another section. You may submit the laboratory report to Dr. Linda McCollam-Guilani (TLS 260) at any time prior to your regularly scheduled laboratory section.

VI. Plagiarism Policy:

You will be working with a lab partner and in some experiments with more than one partner. We encourage peer learning, but all laboratory assignments (laboratory reports, problem sets, pre-lab questions, structural lab assignment, and the Taq Manuscript) must be created independently, which includes all graphs, tables, and figures submitted. We take plagiarism (from books, articles, the internet or other students) very seriously. Any act of plagiarism is grounds for immediate action and can result in an "F" for the course as well as expulsion from the university. All students must sign "Policy on Plagiarism" sheet prior to the start of the semester. Penalties for plagiarism are clearly stated on Plagiarism Policy form posted on HuskyCT. Please properly cite any references used for the laboratory report or for the Taq polymerase manuscript.

- **Plagiarism Module/Quiz Requirement:**

  The following is provided courtesy of another professor. We will adopt this for MCB 3010. There is a link to the Indiana University "How to Recognize Plagiarism" site on the course HuskyCT homepage. At that site is a quiz that will help you recognize different kinds of plagiarism that might not be obvious. There is also a link there that defines these types of plagiarism. You should read through their descriptions so you can take the quiz successfully. You will see two different tests on the site. You are required to take the test titled "I'm an undergraduate college student or advanced high school student". Once you pass the test, you will be able to print out a Confirmation Certificate

which certifies that you have successfully completed the test. Once your print the certificate, you must sign it and submit it to
your TA by the beginning of your lab section the week of February 3rd.
You can take the test repeatedly until you get all the questions correctly answered.
Before your first assignment is graded (Buffers lab report), you must submit the Confirmation Certificate from the Indiana University website. If the certificate is not submitted by the due date for the Buffers lab report, your lab report will not be accepted and the lab report will be considered late (please refer to Submission of Lab reports section for late policy guidelines).

After completing the online test, you can print out this Certificate.
Change the "Indiana University" phrase in the boxed text on the Certificate to "the University of Connecticut," complete the form, sign it, and turn this in to your lab TA.

VII. Guideline for Grading of Laboratory Reports:

- Basic Grading Rubric for laboratory reports. (Note: this could deviate slightly depending on the lab!)
  - Out of 100 points:
    - Lab Notebook pages 10
    - Data Presentation (graphs, figures, tables ,etc) 40
    - Data Evaluation 30
    - Questions (pre and/or post) 20

Lab notebook page requirement for Lab Report #5 (Taq II, III, IV, and V):

- For Taq II, III, and IV labs- Students are required to either scan their pages or take a picture using their cell phone and the image must be e-mailed to their TA. Please include an appropriate subject heading in the e-mail " Lab Notebook pages for Taq II, etc."
- Lab notebook pages are not required for Taq V, Taq VI, Taq VII, Taq VIII, and the Redox Potential of Cytochrome c lab

VIII. Laboratory Report Requirements:

- **Lab Notebook Pages:**
  All experimental data should be recorded in your Lab Notebook. The lab notebook must be a carbon copy lab notebook which can be purchased at the bookstore. The laboratory notebook should include: any protocol changes, identification of samples, observations, and raw data. Record data and observations as you obtain them because you will not have time to transfer information to the lab notebook later. Lab Note book pages will be collected at the end of each lab class. Please do not worry if your lab notebook is a little messy; you will not lose points for this**. Each page should be numbered, dated, and signed.**

  Lab notebook page requirement for Lab Report #5 (Taq II, III, IV, and V):
  - For Taq II, III, and IV labs- Students are required to either scan their pages or take a picture using their cell phone and the image must be e-mailed to their TA. Please include an appropriate subject heading in the e-mail " Lab Notebook pages for Taq II, etc."
  - Lab notebook pages are not required for Taq V, Taq VI, Taq VII, Taq VIII, and the Redox Potential of Cytochrome c lab

- **Data Presentation:**
  The Data Presentation section should include presentation of the data collected in a neat organized manner. This is where **Tables, Figures**, and **Graphs** should be presented. In addition, include examples of all **calculations** in this section. **Figures specified for the Taq polymerase manuscript should have no title. Instead they should have the designated Fig # and a figure legend below the figure.**

- **Data Evaluation (12 pt font single spaced):**
  This is a **brief** evaluation of your data. In this section the data should be analyzed and the significance of the data should be discussed. Please do not reiterate the Experimental Procedure in this section! This section should also include any potential sources of error and an estimation of the accuracy of your results. Discuss observations you found unusual or unexpected and why they may have occurred. You may present the Data Evaluation as a separate section at the end of your laboratory report, or you may present the Data Evaluation in multiple sections below individual graphs, figures, and tables in your Data Presentation section.

- **Questions:**
  Answer any questions presented at the beginning and/or end of the lab.

Special instructions for Taq polymerase figures:

In the middle of the semester, you will be doing a multi-week lab to purify Taq polymerase, an enzyme. At the end, you will write a formal manuscript. Your final Taq Polymerase manuscript will have 4 figures with corresponding figure legends for each one. You will also have one Table to monitor the loss of total protein at each step. (PLEASE, REMEMBER TO RECORD PROTEIN VALUES AND VOLUMES FOR RESPECTIVE STEPS OF THE PURIFICATION. YOU WILL NEED BOTH TO CALCULATE THE PROTEIN REMAINING.) You will turn in these figures with the corresponding lab report as you progress through the purification so that you can receive feedback from your TA.

Each figure must have a figure legend. To construct your figure legend, please review the research papers posted on HuskyCT to give you a sense of what is included—basically, the figure legend should have enough detail so that the reader can readily understand what is going on in the experiment. However, it should not be a repetition of what would be included in the Methods section of the paper. The figure/legend should also have a brief descriptive title; abbreviated titles are given in the table below.

For figures containing gel images, lanes should be numbered on the figure itself and what the numbers correspond to defined in the legend. Make use of arrows to point out a particular band. Include positions of molecular weight standards.

When you turn in your Taq lab reports, your TA will make suggestions for improving these figures and legends. When you receive your comments back, please make the necessary corrections, and use the corrected figure in the manuscript. It would also be wise to write up sections of the Methods and Results as you complete them so that you do not need to write the entire paper at the end of the semester.

IX. Laboratory Help:

Lab Help:

- **Teaching Assistant Office Hours:**
  - MCB 3010 Teaching Assistants are required to hold one hour of office hours per week. During this semester, two TAs will be teaching the laboratory sections**. Please note: You may see either of the laboratory TAs for help. The office hours will be posted both inside and outside laboratory classroom (TLS 203) and on HuskyCT.**
- **Laboratory Manager**
  - If you have any questions or concerns regarding the MCB 3010 laboratory please feel free to contact Dr. Linda McCollam-Guilani (486-4972) or via e-mail: linda.mccollam-guilani@uconn.edu

Teaching Assistant Office Hours:
Teaching Assistants will be available during your regular scheduled lab to answer questions via the Blackboard Collaborate Ultra Tool on HuskyCT in the Course Tools. If you have a question outside of this designated time, please feel free to e-mail Dr. Guilani (linda.mccollam-guilani@uconn.edu) or your TA

X. Contesting a Grade:

If you wish to contest a grade on any laboratory assignment (lab reports, quizzes, problem sets, etc), you must make arrangements to meet with your TA or Dr. Guilani within one week of receiving the graded assignment. Graded assignments will not be reviewed by your TA or Dr. Guilani beyond one week after you received this assignment back from your TA.

If you wish to contest a grade on any laboratory assignment (lab reports, quizzes, problem sets, etc), you must e-mail your TA and Dr. Guilani (linda.mccollam-guilani@uconn.edu) within one week of receiving the graded assignment (which will be via e-mail!). Graded assignments will not be reviewed by your TA or Dr. Guilani beyond one week after you have received the grade back from your TA.

TAs should be e-mailing completed grading rubrics for the lab report one week after the lab report has been submitted.

XI. Laboratory Safety:

- Come to lab prepared!
- Wear safety glasses in the lab at all times.
- **NO** mouth pipetting.
- **NO** food or drinks permitted in the lab. A cart will be provided outside of the lab room for any food/drinks.
- **NO** cell phones permitted in the lab.
- **NO** bare feet, sandals, flip-flops, clogs, or other footwear that expose the front, top, side, or back of the feet. You will have to wear "booties" provided by your TA if you come to lab with improper footwear. You must wear closed-toed footwear.
- **You must wear clothing that covers the legs. Lab coats are recommended.**
- Dispose of broken glass properly in labeled waste container.
- Report any injury to the Teaching Assistant and complete the appropriate Accident Report Form.
- Sweep up all broken glassware and place in the bucket labeled "Broken Glass". Notify your instructor so the item can be replaced.
- Discard Pasteur pipets and pipet tips in the appropriate containers provided.
- Please use wastebaskets for paper waste.
- Before and after each laboratory session, clean your bench area with the paper towels provided.
- Be aware of the chemicals you are working with and follow instructions for safe handling.

- When using instruments, e.g. pH meters, spectrophotometers, centrifuges, etc., **leave the equipment clean!** Do not leave glassware, spilled solutions, or chemicals lying around the bench tops.

XII. Health Statement:

If you have any health related issues that may prevent you from participating in any of the laboratory exercises please provide the appropriate documentation or contact the UConn Center for Student with Disabilities.
http://www.csd.uconn.edu/index.php

Contact Information
Center for Students with Disabilities
Wilbur Cross Building, Room 204
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