CH102 Laboratory Syllabus (Summer 1, 2021)

Course Staff

Dr. Jose Medrano (medrano@bu.edu) is in charge of the general chemistry labs.

The lab sections are taught by a team of graduate teaching fellows (TFs):

- Section L1 is taught by Yawen Zhang, zhangyaw@bu.edu
- Section L2 is taught by Emma Anquillare, eanquill@bu.edu

Course schedule

There will be two three-hour lab sessions each week on Tuesdays and Thursdays from 9am to 12pm Eastern Time. The detailed schedule of lab experiments is posted at the end of this syllabus.

Each TF will hold an additional 1 hour of office hours immediately following their lab section. These office hours are a great opportunity to finish any outstanding lab work, get conceptual questions answered, or discuss any concerns that you might have.

In summer 2021, all lab sessions will be held remotely. They will include group discussions with TFs, working on virtual lab experiments and simulations, and working up data. These sessions will take place via Zoom – all of the links will be posted on the course Blackboard site at learn.bu.edu. **Your first remote lab section is on Tuesday, May 25, 2021.**

There will also be *optional* in-person labs for students in Boston. These are a great opportunity to learn important skills and techniques, and for any students who needs an in-person lab for accreditation purposes. Students who are unable to attend these labs will not be penalized in any way. Students who do take part in these in-person labs will have the opportunity to drop lower-scoring virtual labs. More details about these in-person labs can be found at the end of this syllabus.

Course materials – lab

There are no additional lab-related materials that you will need for summer 2021, beyond the equipment and materials needed for the lecture/discussion portion of the course (computer with webcam and microphone, high-speed internet, notebooks and writing implements, and a non-graphing/non-programmable calculator)

Most of the labs that we will do will involve the Virtual Lab Simulations by Hayden McNeil publishing. Students at BU in Summer 2021 will get ***free access*** to these simulations. Details on how to access the lab materials are posted on Blackboard under "Lab content."

Structure and Expectations for the lab sessions

- Each lab will start promptly at 9:00am. Please arrive a few minutes early to the Zoom session to make sure that you do not have connection problems.
- The session will begin with a large group presentation and discussion with the TF. This discussion will last about 30 minutes and it will introduce the lab topic and usually involve a large group activity and discussion.
- Next, students will break-up into Zoom breakout rooms in group of ~3 students. Here, you will work on the lab simulation(s).
- After having completed working through the assigned activities, taking notes and observations, and discussing your findings in your group, you will work individually on preparing a post-lab

assignment (usually some calculations, graph construction, and answering qualitative and quantitative questions). Then, there will be a short "quiz" on the lab that you've completed.
- In total, all of the activities (and work) should take less than the 3-hour lab period. Therefore, at the end of each lab section students will submit their ***individual*** post-lab assignment for grading. In some cases, labs will be due at a later date (in case they are a little longer) – this will be communicated with students by the TF.

Lab grading

The laboratory grade will account for 15% of the overall CH102 course score.

Each lab session will have a maximum score of 30 points. These points are broken down (approximately) as:
- 15% of lab points will be assign for the lab engagement and participation (attending promptly the lab sessions, actively participating in the large and small group discussion, and submitting assignment on time)
- 60% of lab points will be awarded for the post-lab assignments
- 25% of points for the end-of-lab "quiz"

One lab with the lowest score will be dropped at the end of the semester (either a missed lab or the lowest score).

Detailed lab schedule

Week	Day	Date	Experiment Description
1	Tues	5/25	Exp. #1 – Orientation and Introduction to Lab Simulations
1	Thurs	5/27	Exp. #2 – Characteristic Properties: melting and boiling points
2	Tues	6/1	Exp. #3 – A Molecular mass by freezing point depression lab
2	Thurs	6/3	Exp. #4 – Chemical kinetics lab
3	Tues	6/8	Exp. #5 – Qualitative analysis – Part 1
3	Thurs	6/10	Exp. #6 – Qualitative analysis – Part 2
4	Tues	6/15	Exp. #7 – Solubility lab: precipitation titration of $CoCl_2$
4	Thurs	6/17	Exp. #8 – Titration tutorial
5	Tues	6/22	Exp. #9 – Titration of strong and weak acids
5	Thurs	6/24	No labs
6	Tues	6/29	Exp. #10 – Electrochemistry lab
6	Thurs	7/1	No labs

Optional in-person labs

There will be several optional in-person lab experiences (IPLEs) throughout summer 1. Each of these labs will cover important techniques and skills that will be useful in future coursework. Additionally, many graduate and professional programs will require students to have learned and mastered these skills. If you are in Boston (or nearby) during the summer, you may choose to take part in these experiments.

At the end of the semester, each in-person lab experience can be used to replace a virtual lab (whether missed or low-scoring). These in-person labs will be scheduled directly with the lab instructor. An email about signing-up for in-person labs will follow separately.