

CHY 123 General Chemistry I Laboratory Syllabus

The general chemistry lab courses have transitioned from being conducted in-person, to being conducted remotely. Since remote learning can be defined in different ways, we have modified the standard syllabus for CHY 123 to explain what we mean by remote learning in the context of the chemistry lab. Please read this document carefully to understand what will be expected of you this semester. The bulleted points below summarize the important points about remote chemistry labs and Table 1 provides a comparison of the remote lab course to prior years. For the general chemistry lab course, CHY 123, remote lab means:

- You will perform actual scientific experiments.
- Experiments will be conducted remotely, using equipment, supplies, and chemicals obtained by renting a kit.
- You will be responsible for following guidelines to conduct experiments safely during your scheduled lab time, when a Zoom meeting will concurrently occur with a TA.
- You will also have an opportunity to get extra help from your TA, by appointment.

Table 1. Elements in Remote Learning for General Chemistry Labs compared to prior years.

	Experiments	Where	Equipment & Chemicals	Safety	Supervision/ Help	Extra Help
F2020 Remote labs	Students conduct scientific experiments	Remote location	Provided by Rental of lab kit	Students have primary role in conducting experiments safely – must pass safety quiz	TA available online as resource during lab session	TA available by appointment
Prior years labs	Students conduct scientific experiments	In chemistry labs	Provided in laboratory	Student have primary role in conducting experiments safely – must pass safety quiz	TA available in-person as resource	TA available by appointment

Laboratory experiments have been modified compared to prior years. These changes reduce chemical and safety hazards **but they do not eliminate all chemical and safety hazards**. As in any chemistry lab course, you will need to understand chemical and safety hazards **prior to conducting each experiment**, by completing a pre-lab activity that includes identifying chemical and safety hazards. **Please see the remote learning safety policies in Part B of this syllabus.**

Because the experiments are to be performed remotely, we ask that you identify a well-lighted, flat surface where you can conduct experiments. It will be your responsibility to conduct the experiments safely. We will provide procedures for each experiment, and your chemistry kit will contain goggles, gloves, and a paper mat upon which you can perform your experiments.

Since safety is our primary concern in providing these experiments to you, we require that you are well-prepared for lab, by conducting all pre-lab activities prior to the start of lab. In addition, at the beginning of your lab period, a teaching assistant will be there to answer questions via an online Zoom meeting. During the time your lab section meets, your TA is available to provide advice.

The **F2020 General Chemistry Lab Bundle** is available at the University of Maine bookstore. There is no substitute or access anywhere else. It will contain a lab notebook, and will have the following components:

- **Inter-Chem-Net (ICN) Access Packet** containing an access code used to set up ICN, an online program used for obtaining and submitting assignments. Note: the lab course does not use Brightspace.
- Rental of a **F2020 General Chemistry Lab Kit**: a box containing equipment, chemicals, and supplies. You will need to return certain equipment to avoid additional charges. You will need to sign a rental agreement.

Part A: General information about lab course

1. **Course information:** In addition to the information contained in this syllabus, there is additional course information contained in:

- **InterChemNet (ICN) Access Packet** (see below left), and
- **Each lab experiment** which contains procedures with certain rules and expectations (see below right).

Note: to conduct the general chemistry lab experiments, you will need to obtain a F2020 **General Chemistry Lab Bundle**.

<p><u>InterChemNet (ICN) Access Packet:</u></p> <ol style="list-style-type: none">(1) Establishing your ICN account,(2) Downloading 1st assignment,(3) Downloading Syllabus,(4) Answering the quiz and signing forms,(5) Uploading your 1st assignment,(6) Getting prepared for your 1st experiment,(7) Getting help,(8) InterChemNet News	<p style="text-align: center;"><u>This Syllabus</u></p> <p><u>Part A (General info about lab course):</u></p> <ol style="list-style-type: none">(1) Course information(2) Catalog description(3) Lab schedule(4) Course objectives(5) Learning outcomes(6) Grading, attendance etc.(7) Laboratory curriculum & topics covered(8) Some general policies <p><u>Part B Remote Lab Safety Policies & Information</u></p> <ol style="list-style-type: none">(1) Remote labs.(2) Hazards of the Experiments.(3) Remote Lab Safety Policies.(4) Emergency Lab Procedures:(5) Location.(6) In the Vicinity of the Lab Experiments.(7) Health Concerns.(8) Lab Kit. F2020 General Chemistry Lab Kit:(9) When Handling Chemicals:(10) Misc. General Chemistry Lab Basics <p><u>Part C: Frequently Asked Questions About Lab (FAQs)</u></p>	<p><u>Instructions in each lab experiment:</u></p> <ol style="list-style-type: none">(1) Information,(2) Scientific questions,(3) Rubrics,(4) Worksheet (where included)(5) Designing experiments (where included)(6) Template for lab reports
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2. **Catalog Description:** Introduction to experimental techniques and the process of scientific inquiry in chemistry. Emphasis is placed on making connections between macroscopic experimental observations and chemistry occurring at the atomic scale. Laboratory investigations are designed to help strengthen chemical understanding of concepts such as conservation of mass, limiting reactants, heats of reaction, greenhouse gases, chemical redox reactions, chromatography, and spectroscopy. CHY 123 is taken concurrently with CHY 121. General Education Requirements: Together with CHY 121, this course satisfies the General Education Lab in the Basic or Applied Sciences requirement. **Co-requisite:** CHY 121.

Note: The experiments normally offered in-person have been modified. In general, the description for the course is applicable but the specific type of labs may have been modified. ***There will be times throughout the semester when you will be expected to turn on your webcam***, for example to obtain help from a TA, to make a presentation or demonstrate a laboratory technique, in particular for Badging activities.

3. **Lab schedule:** Lab meets once a week for 3 hours. For fall 2020, this means students will meet with their TA *via* Zoom once a week at their regularly scheduled lab time.

4. Course objectives:

- To learn about safety procedures (proper disposal of chemicals, PPE, personal protective equipment), SDS and other safety reference materials, chemical and physical hazards associated with laboratory investigations
- To become proficient with a variety of common chemical analytical techniques including electronic balances, volumetric glassware, preparation of solutions, chemical measurements using various instruments (e.g. spectrometers, pH meters)
- To learn about the scientific process
 - Laboratory work is essential for providing students with a perspective of chemistry as a scientific process of discovery
- To discover the importance of careful laboratory observations and thinking about chemistry
 - Laboratories are primarily hands on but with supervision
- To become proficient in:
 - Recording lab data
 - Communicating and presenting data (Figures, Graphs, Tables, etc.)
 - Analysis of data
 - Making claims that originate from student generated data and analysis
 - Writing lab reports (data presentation, analysis, and conclusions) [approximately 6 lab reports are required]
 - Communicating results
- To experience some inquiry-driven experiments promoting the connection between macroscopic and submicroscopic thinking. See: (Avargil, Bruce, Amar, & Bruce, 2015)
- To keep a lab notebook to record essential observations and data
- To gain an understanding of how data from instrumental techniques are used in chemical investigations involving chemical reactions and reactivity
- To introduce students to the use of computers and instruments in the investigation of chemistry

5. Learning outcomes: On completion of this course you should be able to:

- Understand safe practices in lab
- Engage in a process of scientific inquiry in chemistry
- Be able to identify underlying chemical content through laboratory investigations including such concepts as conservation of mass, limiting reactants, heats of reaction, concentration expressed in moles per liter, dilution, pH, oxidation and reduction, and spectroscopy
- Understand how to keep a lab notebook, record valid data, analyze data, and make a scientific claim using evidence and scientific reasoning

Please note that the objectives listed above are different than classroom activities and topics of examination in CHY 121. While there are underlying chemical concepts that overlap with the class course (e.g. concentration, balanced chemical reactions, limiting reactants) there are many student-centered activities that require the development of different skills and do not follow in sequence the material that is covered in the class. Lecture and lab are designed to strengthen and deepen chemical understanding, using many of the same underlying concepts, but sometimes in different orders. Also, lab experiments always involve generating evidence to support ideas, but in lecture this is not usually covered. **The lecture and lab course are thus complementary and together they are designed to strengthen and deepen chemical understanding. Also see the information provided in the lab packet.**

6. Grading, Attendance, and Completion Requirements for General Chemistry Lab Courses:

Lab work is scored by TAs under the direction of the faculty in charge of the course. While equity in scoring of lab work is a course goal, some differences in how lab work is approached and scored is to be expected. The faculty in charge reserves the right to make adjustments in scored work. Historically, students obtaining > 90% of the course points earned will receive an A grade (A or A-), > 80% will receive a B- or better (B or B+), etc. The exact cut offs and/or adjustment reflect various factors. It is also important to note several important aspects of the lab course:

Remote Attendance:

- Remote attendance is expected. This is a time when you can touch base with your TA.
- Zoom meetings: the link for your online remote lab section meeting will be posted on your ICN dashboard. You need to obtain and use your access code to set up an ICN account. Your TA will host the Zoom meeting at the time shown for you lab section in your course schedule.

Lab Assignments:

- Information about the scoring of individual assignments (i.e. a rubric) is posted within each lab procedure. There will be a variety of assignments throughout the semester, including short write-ups, videos, lab reports, and other assignments.

Remote Lab Makeups:

- There are no official make-up forms.
- You are expected to perform lab **during the time in your schedule for lab and on the zoom meeting hosted by your TA**. However, if you need to make up a lab once or twice at a different time, here are our guidelines.
- **There are no guarantees of making up a lab.**
- Labs are given throughout the week, with the weekly cycle starting on Monday or Tuesday, and continuing into the following week. If you have questions about the weekly lab cycle, contact your TA.
- Many lab sessions will be conducted online throughout the week in the same lab room. The schedule of labs will be posted.
- On the schedule of labs, you will notice that your lab section is associated with a virtual room number, even though you will be performing the labs remotely. The **Zoom meeting link** will be associated **with the same virtual lab room**. If you use your Zoom link at another lab session, you will be able to see what lab it is from the virtual room number.
- If you need to attend another lab session, the TA hosting the lab must be agreeable. Labs have 16-20 students assigned. In general, if you attend another lab section, and there are only a few extra students, it is our expectation you will be able to join in on these online sessions. You will then have the opportunity to ask questions of the TA and/or hear what a TA and other students are discussing. However, if too many students join any particular lab section, or if a TA has other objections, the TA may ask all students who are not scheduled at that time to leave the online zoom meeting. If this occurs, please be respectful and leave that lab session. You may, however, try to attend another session at a different time in the hat same room.

Lab reports and submission of other assignments:

- Initial Lab Report: For the first experiment, which requires a lab report, you will be asked to draft an initial lab report. Your instructor will then work with you the following week so that you understand how to write a lab report. After obtaining a score on the first lab report, you will be able to resubmit it for a regrade. This regrade is available only for your first lab report.
- For experiments requiring lab reports, you will generally be given 1 week after the experiment is performed remotely by your lab section, even when there is a holiday (e.g. holiday breaks). **After three weeks, an assignment may be considered past due. Once a lab is past due, it will be entered as a score of zero. Please be respectful of this deadline.**
- Even though labs are being offered remotely, we want you to recognize that assignments will be due throughout the semester. We want you to avoid trying to submit a lot of assignments

near the end of the course. This is because TAs are also students, and must score your work throughout the semester, else they will not have enough time themselves to complete all of the work required. **This is why we have a past due policy, which says that after three weeks, an assignment may be considered past due and it will then not be scored.**

- **If you miss 3 lab assignments (or more), you can fail the course, regardless of your average scores.** This requirement is also in place because of the vital nature that communication has in science. Please have your academic advisor contact Dr. Bruce at mbruce@maine.edu if there are any extenuating circumstances (e.g. medical) which prevent making up labs.
- We understand the unusual circumstances that are present with COVID-19. If valid circumstances prevent you from completing the course, we may need to offer you an incomplete in the course. Your advisor or a UMaine representative should contact Dr. Bruce at mbruce@maine.edu to initiate any request.

If you decide to drop the lecture portion of the course (e.g. CHY 121 or 131):

- **If you withdraw from the co-requisite lecture course (CHY 121/131), you will be allowed to continue in lab as long as there is no evidence that you are conducting labs unsafely or you are not prepared for lab.**

Concerns regarding TAs:

- The TAs are under the direction of Dr. Mitchell Bruce. If you have any concerns regarding your TA, please contact Dr. Bruce at mbruce@maine.edu.

Getting help:

- If you have difficulties submitting lab work, it is your responsibility to get help and work out a solution with your TA. With the possible exception of the final assignment, lab work is never accepted past the end of classes.

7. Laboratory Curriculum and Topics Covered (specimen curriculum):

Please note: the following is only a summary. The lab procedures will provide additional details.

- Week 1 ICN Basics, Safety and Policy Quiz. Students are required to study the materials provided and to pass the online quiz ($\geq 75\%$) (total assignment: 100 pts)
- Week 2 Introduction to measurement: Calibration Badge. Students will use a balance along with various sizes of graduated cylinders, to calibrate their volumetric equipment. The student will generate calibration graphs and produce a video (uploaded with graphs) to illustrate this skill. The activity will result in students earning a badge in this activity. The badge will allow students to use this equipment in other experiments (total assignment: 100 pts)
- Week 3 Bringing Lab into Focus. An inquiry lab for measuring the density of an aqueous sucrose solution and various objects. The law of buoyancy will be reviewed and a Table of density (weight/weight, water/sucrose mixtures) will be provided. Students will determine the density of a plastic cube and design an experiment. The goal is to help students understand the role that data has in making strong scientific claims, using a scientific explanation (e.g. theory). Written assignment with pictures embedded. (total assignment: 100 points)
- Week 4 Polymers and Cross Linking. This lab is designed as a guided learning activity, employing a three step **CORE** learning cycle (Avargil et al., 2015), to help students learn about chemical observations, constructing an understanding about chemical interactions, and designing and performing a student originated experiment. (Lab Report) (total assignment: 100 pts)
- Week 5 Writing Lab Reports Workshop. This workshop helps students develop skill in writing lab reports as well as understanding the expectations for lab reports. Students bring in a draft of the polymers and cross-linking lab report. Students discuss their drafts and answer some post-lab questions (total assignment: 100 pts)
- Week 6 Paper Chromatography of Food Dyes. In this experiment, students will use a technique called paper chromatography to separate and identify different colored dyes. (Lab Report) (total assignment 100 pts.)
- Week 7 Precipitation and Conservation of Mass experiment: Filtration Badge. This lab is designed as a guided learning activity (in part based on Avargil et al., 2015), to help understand about precipitation reactions and the law of conservation of mass. The activity will result in students earning a Badge in Filtration. (total assignment 100 pts)
- Week 8 Catch Up days
- Week 9 Heats of Reaction: applications of thermochemistry. Using a coffee cup calorimeter, students experimentally determine the coffee cup calorimeter constant, then use it to determine the heat generated and absorbed in exothermic and endothermic reactions. (Lab Report) (total assignment 100 pts)
- Week 10 Badge in Dilution of Solutions. Students will use an Arduino spectrometer device to determine the concentration of a food dye. Each student will submit a video to demonstrate their understanding of dilution. (total assignment 100 pts)
- Week 11 Catch up Days
- Week 12 Using an Arduino device, students will capture infrared readings at two wavelengths representing oxygenated and deoxygenated blood. Students will capture a 10 sec pulse reading, and using that, the program will calculate the level of oxygen in a person's bloodstream. This is not a medical device but is being used to demonstrate the way how oximeters work. A lab report and upload of data will be required. (total assignment 100 pts)
- Week 13 Catch up Days

8. Some General University of Maine Policies

- **Academic Honesty Statement:** Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.
- **Students Accessibility Services Statement:** If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with Dr. Mitchell Bruce (the faculty in charge of the general chemistry laboratory courses) privately as soon as possible.
- **Course Schedule Disclaimer (Disruption Clause):** In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.
- **Observance of Religious Holidays/Events:** The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**.

For *confidential resources off campus*: **Rape Response Services: 1-800-871-7741** or **Partners for Peace: 1-800-863-9909**.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911**. Or [see the OSAVP website for a complete list of services](#).

Part B: Remote Lab Safety Policies & Information

1. Remote labs. As defined at the beginning of this syllabus, labs will be conducted remotely in Fall 2020.

2. Hazards of the Experiments. While the procedures and chemicals have been modified to make them more applicable for remote use, there are still hazards which require you to pledge to keep safety at the forefront of everything you do remotely. If anything seems unsafe, don't do it, and ask for help.

3. Remote Lab Safety Policies. You must familiarize yourself with and agree to follow all remote lab safety regulations. This is accomplished by:

- a. Reading and understanding the remote lab safety policies outlined in this section.
- b. Recognizing that additional safety information may become available as part of prelab activities to prepare for each lab experiment.
- c. Submitting answers to a safety and policy quiz via ICN prior to conducting your first lab experiment. This quiz will be scored. You must obtain >75% in order to take the course.
- d. Sign forms as part of the first lab assignment and upload them to ICN. The forms acknowledge that you have read and understand the remote lab safety policies. As part of the first lab session, before the quiz is due, you will have an opportunity to ask questions about the remote lab safety policies.
- e. Attend the online zoom lab sessions which will meet when your lab section is scheduled to meet (refer to your schedule in MaineStreet). During this session, you will agree to be available to participate in zoom polls. These polls will cover safety preparation and there will be an opportunity to ask questions before starting an experiment.

4. Emergency Lab Procedures:

Develop Emergency Lab Procedures that are application to your situation and location. Every situation is different. We require that you develop a plan for what to do if you have an accident. This will be part of one of your first pre-lab assignments. A good plan will include:

- a. The location and description of where you will perform labs.
- b. The identity of one or more individuals whom you will inform when you are performing lab experiments.
- c. Information about how to seek medical help.

5. Location. Where you perform lab experiments:

You need to identify a well-lighted, flat surface for conducting experiments. Many of the experiments will require room temperature or warm water, so it will be important to have a source of water. You should also have access to a sink for cleaning beakers, test tubes, and other lab ware. All chemicals used in the experiments are soluble in water and are safe to put down the drain.

It is also recommended that you pay attention to ventilation when doing any chemical experiment. Each experiment will have different safety considerations. As part of the prelab activity, you will be asked to consider safety aspects of performing an experiment. You will have an opportunity to ask questions. Our number one rule for remote labs is: if anything seems unsafe, don't do it, and ask for help.

6. In the Vicinity of the Lab Experiments. What is nearby as you perform lab experiments?

- a. **Protective Mats.** Your lab kit contains protectives mats to cover surfaces when performing any experiment. Use them as appropriate.
- b. **Goggles.** Goggles are supplied and are required to be used whenever performing any

experiment.

c. **Gloves.** You are being supplied with several sizes of disposable gloves, which you should wear whenever handling hazardous chemicals. The gloves should be removed if you leave the area you are using for conducting experiments. After lab, be sure to wash your hands thoroughly. Never touch your eyes or face until you are sure that your hands are clean.

d. **Food and Drink.** Food and drinks should be kept well away from the place where you will be performing lab experiments. This means that food and drinks should not be in the vicinity at the time you are conducting experiments. Note: even a water bottle should not be in the vicinity when you are performing lab experiments.

e. **Contact Lenses.** We do not recommend using contact lenses when conducting any chemistry experiment. This is because chemical vapors can become trapped under the contact lenses. We highly recommend that if you have glasses that are available, that you use them when conducting experiments. If you would like to discuss this issue, please contact Dr. Mitchell Bruce, the faculty in charge of the general chemistry program, at mbruce@maine.edu.

f. **Clothing.** You may want to avoid wearing very good clothes when performing any lab experiment. Avoid sandals and open-toed shoes. Long hair should be pulled back. Shorts are not recommended.

7. Health Concerns.

a. If you develop any medical condition, which might limit your ability to perform experiments in the laboratory, please immediately inform Dr. Mitchell Bruce, mbruce@maine.edu, who can provide guidance.

b. If you are pregnant or become pregnant during the semester, this may limit your ability to perform experiments in the laboratory; please contact us immediately to discuss this. This information will be treated confidentially. You can contact Dr. Mitchell Bruce at mbruce@maine.edu to set up an appointment.

8. F2020 General Chemistry Lab Kit:

a. The box and plastic liner that comes with the kit must be preserved. They will be needed to return the kit.

b. There will be a list of equipment, supplies, and chemicals in the kit.

c. As you perform experiments, we recommend that you keep the contents in the box organized. This will allow you to identify equipment, supplies, and chemicals needed for each experiment.

d. There will be information about storing or disposing chemicals in the lab procedures you will download on ICN. Follow these directions.

e. At the end of the course, you can return the equipment, supplies, and unused chemicals in the kit, using the liner to seal the contents in the box.

f. If you have any questions about dropping off or shipping the box back to the University of Maine bookstore, you may contact the general chemistry lab manager, Dr. Sarah Bernard at sarah.e.bernard@maine.edu.

9. When Handling Chemicals:

- Assume that all chemicals are harmful. Don't touch, eat, or smell any chemical directly.
- Always check the label on the bottle before dispensing a chemical. Make sure that it is the right compound and the appropriate concentration.
- Pour liquids into a small beaker before transferring to a small flask or graduated cylinder to avoid spills.

- Always cap bottles immediately after you are done. While obtaining the chemical, either hold the cap or place it on a clean paper towel.
- To avoid contamination, use a clean spatula or scoop when obtaining solids. Never return excess compound to the bottle, instead, properly dispose of the excess chemical.
- Always add the more concentrated solution to the less concentrated one to avoid excessively vigorous reactions. Use a stirring rod to direct the flow of the liquid while pouring.

10. Misc. General Chemistry Lab Basics

a. Keeping a good lab notebook. Put your name on the cover of the lab notebook, with the date it was started. Use your lab notebook to write experimental data and notes into your lab notebook.

b. Labs have pre-lab work. This includes carefully reading the lab procedures and noting safety precautions directly in your lab notebook. Completing all pre-lab safety instructions; for example looking up the safety data sheets (SDS) for each chemical.

c. You should complete the pre-lab assignment before starting an experiment.

d. Copying work. Your submissions should reflect your own work and participation. All analysis, calculations, and claims should be your own original work. In cases where you would like to use another student's data to compare to your own data (never instead of), please identify the student(s) and clearly mark it as someone else's data. In summary, in all cases, your written explanation, insight, and analysis should reflect your own thoughts and be in your own words. Failure to do this may be considered as evidence of plagiarism. Copying sections of text or portions of another lab report and submitting it as your own work can result in failure of the lab course.

Part C: Frequently Asked Questions About Lab (FAQs)

1. I already have an InterChemNet (ICN) code/account and/or a notebook from another semester. Can I use the account again?

No. ICN access is granted on a per course/semester basis. The only exception is if you took an incomplete in lab and will be completing the lab course in the next semester. In that case, contact mbruce@maine.edu.

2. I get an error when trying to activate my ICN account, what do I do?

If you are having problems with your ICN barcode or creating your account, please contact Dr. Sarah Bernard (Lab Manager), sarah.e.bernard@maine.edu.

3. Are there due dates for lab reports?

Yes, lab reports are generally due one week after completing your lab work. After three weeks, they will be considered overdue, and will be scored a zero and will not be graded.

4. I am sick. What do I do?

Your advisor should help you coordinate any time you become sick for more than a few days. Your advisor can contact people at the University and also let your instructors know what is happening. Responses to being sick are done on a case by case basis.

5. Can I copy someone else's work for material to use in my lab reports?

No, your lab report must reflect your own work and participation. In all cases, your written explanation, insight, and analysis should reflect your own thoughts and be in your own words. Failure to do this may be considered as evidence of plagiarism and can result in failure of the lab course.

6. I am retaking the class. Do I need to retake the lab?

It depends. Students who have taken the general chemistry laboratory in the last four years and have earned a grade of C- or better do not need to retake the lab if they retake the class.

7. I plan on dropping the class, can I stay in lab?

For remote labs in F2020, the answer is yes.

8. I want to change my lab section, what do I do?

It's possible to change your lab section, since we offer a number of lab sections throughout the week. However, movement between sections depends on available space. Start by contacting Diane Muir, diane.muir@maine.edu or by visiting the chemistry main office in 154 Aubert Hall.

9. I am having problems with ICN. How can I fix this?

There are a variety of reasons for having difficulty. It is your responsibility to seek help. See Dr. Sarah Bernard (Lab Manager), sarah.e.bernard@maine.edu, Room 229 Aubert Hall.

This document was prepared by Dr. Mitchell Bruce, Fall 2020.

References:

Avargil, S., Bruce, M., Amar, F., & Bruce, A. (2015). Students' Understanding of Analogy after a CORE (Chemical Observations, Representations, Experimentation) Learning Cycle, General Chemistry Experiment. *Journal of Chemical Education* 92, 1626-1638. doi:DOI: 10.1021/acs.jchemed.5b00230