

## Chemistry 1241 - Honors General Chemistry Lab II Spring 2020 Syllabus

Instructor: Dr. Sushma Saraf  
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Mailbox: 1504 HEB  
Office: 1475 Gauss Haus

Office Hours: Wednesday 12:00 - 1:00 PM  
Thursday 10:00 AM - 11:00 AM

Remember you can always email me to set up a time to meet outside of my office hours.

### Administrative

Assistant/Secretary: Jiliane Brandol - Office: TBBC 2420

Co/Pre-requisites: CHEM 1221 is a co-requisite for CHEM 1241  
CHEM 1240 or CHEM 1215 are pre-requisites for CHEM 1241

Credit Hours: 1 credit hour

Lab Location: CSC 105

Lecture Location and Time: CSC 208 - Mondays 4:10-5:00 pm

Components: This course consists of one 50-minute lecture and one 3-hour lab per week

Course Goals: At the end of this course, you will...

- 1) Have an enhanced understanding of core General Chemistry concepts through participation in hands-on, tangible laboratory experiments with Real-World Applications!
- 2) Be able to selectively employ basic laboratory techniques in conjunction to answer "open-ended" questions.
- 3) Be competent with basic laboratory techniques including but not limited to:
  - Titrations
  - Kinetics - Measuring Rates of Reactions
  - Measuring Thermodynamics of Reactions
  - Determining the strength of Acids/Bases through Dissociation constants ( $K_a/K_b$ )

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- Electrochemistry
- Coordination Chemistry

- 4) Be able to analyze data obtained in the lab using Microsoft Excel and from that analysis draw reasonable conclusions pertaining to overarching question(s).
- 5) Obtain a deeper level of proficiency with scientific writing.
- 6) Be able to employ scientific writing to communicate experimental results and their meaning.
- 7) Use Chemistry and Biochemistry databases.
- 8) Communicate scientific information through an oral presentation.
- 9) Understand proper laboratory safety and best practices.

Communication: Important information for the course will regularly be sent out through **Announcements in the Canvas course site**. You are responsible for any information communicated in this way and should check Canvas on a regular basis. If you need to contact me, **email me directly at s.saraf@utah.edu**. Please do not send me messages through Canvas as I will not likely receive these messages.

Teaching Assistants: The General Chemistry Help Room is located in HEB 1316. Any TA in HEB 1316 should be able to offer assistance. This is a great place to get extra help. Your TA will either hold office hours in HEB 1316 or in CSC and will specify the location on your first day of class.

Lectures: The lab lectures will be held weekly in **CSC 208 Mondays from 4:10-5:00 pm**. The purpose of the lecture will be to review concepts, techniques, and safety for the lab to be conducted that week. This is also an opportunity for you to ask Dr. Saraf questions pertaining to CHEM 1241.

Labs: All **CHEM 1241 Labs are held in CSC 105**. You must attend the section of lab which you are registered for as we cannot exceed maximum capacity in the labs due to fire and safety regulations.

Lab Schedule: The **Lab Schedule for the semester can be found on Home Page of Canvas for this course under Course Information and Materials**. This schedule gives an overview of dates the labs will be performed and when assignments are due. Any changes or updates to the Lab Schedule will be communicated to you at the lab lecture and through Canvas announcements.

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Safety: **Your safety is of primary concern.** The **Safety Guidelines Agreement is located in the “Modules” tab on Canvas under “Safety.”** You must read and understand all the presented safety rules before entering lab. To confirm that you have read, understood and agree to these guidelines, you are asked to **bring a signed copy of the last page of the Safety Guidelines Agreement to your first lab.** You will not be allowed into lab unless you provide a signed copy of the Safety Guidelines.

The **online safety quiz** (more information below) will also test your knowledge of the information presented in the Safety Guidelines Agreement and the syllabus for this course. ***Any student who is pregnant or has a medical condition that could put themselves or others at risk in the laboratory should consult with a doctor and the professor before taking part in this course.***

Required  
Materials:

**You will not be required to purchase a laboratory manual!** All laboratory experiment handouts and lab report forms will be available through Canvas in “Modules” under “Laboratory Handouts.” **Safety glasses** meeting the ANSI Z87.1 specifications, a **100% cotton lab coat** and a **flash drive** (1 per group) are required for this course. Safety glasses and lab coats can be either borrowed in Crocker Science or purchased from the American Chemical Society (ACS) Student Affiliates who will be present in the main chemistry lobby during the first week of lab. The exact times will be sent out to you via Canvas. The campus store also sells safety glasses, lab coats (must get 100% cotton lab coats) and flash drives. You can also purchase these items online. The flash drive will be your means of transferring data from the laboratory to your personal laptops to be analyzed for your lab reports.

#### Preparation for the Laboratory:

1. For your safety, **never bring food or beverages** into the lab.
2. **Always dress accordingly.** For your safety in order to prevent burns and toxic chemical exposures: shorts, miniskirts, capris, bare midriffs, sandals and other shoes that do not completely cover your feet are not permitted. You must have **full-length pants, a full-length skirt**, or something equivalent that extends all the way to the tops of your shoes (no skin exposed when you are standing). **Closed toed shoes** (no skin exposed). Clothes can be damaged in the lab so don't wear your favorite outfit. **100% Cotton Lab Coats are required** and can be purchased from the ACS Student

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Affiliates, the campus store or online. **Confine long hair.**

**Eye protection is always required.** You can purchase approved (ANSI Z87.1) **safety glasses or goggles** at the campus store, online or from the ACS Student Affiliates who will be present in the main chemistry lobby/atrium during the first week of lab. Approved (ANSI Z87.1) safety glasses are the minimum eye protection required. You may wish to purchase chemical splash goggles meeting the ANSI Z87.1 specification instead of glasses. Goggles are a bit more cumbersome to wear but provide better protection for your eyes in the event that chemicals splash onto you. Repeated failure to keep glasses/goggles on during lab will result in a student being excluded from lab and could result in expulsion and a failing grade for the course.

3. Always bring your **flash drive** for data transfer (I recommend getting one that you can keep on your key ring).
4. Before coming to the laboratory, read the experiment carefully, attend the laboratory lecture, and prepare the appropriate data tables in which to collect your data.
5. Familiarize yourself with the chemicals you will be using in lab each week and their associated hazards. This information can be found by looking up the MSDS or SDS for each chemical. See the safety guidelines packet for more information about how to do this. This will most likely be incorporated into your pre-lab component.
6. **Arrive to the lab on time!** These labs are designed to take the full 3 hrs. If you are more than 15 minutes late to lab, you will not be allowed to “jump in” with your lab partner. You will need to start the experiment on your own or with someone else who arrived late. You are not guaranteed extra time or space to complete the experiment if you are late and you may miss important safety information as well as general instruction. You also will not receive additional time to complete the experiment if you are late.
7. You should not use personal electronic devices (cell phones, laptops, tablets, etc.) in the laboratory unless they are the designated laboratory laptops. Personal electronic devices can be easily damaged or ruined by fire, chemicals, water, etc. Additionally, chemical contamination of such devices is likely in a laboratory setting and can pose serious safety hazards.
8. You will pick a partner the first day of lab and you will work with that person for the rest of the semester. Do not ask to switch partners unless there is a concern of personal health and safety. An important learning goal for this course is **communication and teamwork**. You are encouraged to communicate and work through any difficulties to help develop these skills. ***The data that you will collect will be the same for both of you. However, your lab reports should not be. The work in lab is done with partners but***

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**your lab report must be done individually unless otherwise indicated**  
(self-directed labs are the only accepted group work)

### ***Academic Dishonesty***

*By submitting an assignment, you are representing that it is your own work and that you have followed the rules associated with the assignment. Incidents of academic misconduct (including cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating on an assignment) will be dealt with severely, in accordance with the Student Code (<http://www.admin.utah.edu/ppmanual/8/8-10.html>). A single instance of academic misconduct may result in a failing grade for the course. Multiple instances of academic misconduct may result in probation, suspension or dismissal from a program, suspension or dismissal from the University, or revocation of a degree or certificate.*

Lab Reports: Lab reports are found at the end of the laboratory handouts located on Canvas in "Modules." All questions must be answered and any calculations that are required must also be done. Any plots that are needed to complete the lab report should be turned in with the report. Plots that accompany the lab reports must be created by you in excel and be properly labeled. Both effort and correctness will be considered in the grading of lab reports. Show all work and clearly label everything! Always include units. **There are no makeups for missed labs. Your best 7 out of 8 Lab Report scores will count toward your final grade. You cannot turn in a lab report for a lab that you did not attend.** Lab reports must be turned in to your TA by the beginning of the following week's experiment (within 15 minutes of the lab's start time). If you cannot attend the next week's experiment, you must make arrangements to hand in your lab report BEFORE the normal deadline. **Late lab reports are not accepted**, except under extreme circumstances (documentation for illness, accident, etc.). In those cases, the instructor (not your TA) MAY allow a lab report to be turned in late with appropriate documentation. **(25 points each)**

Dystan Medical

Procedure Proposal: Must be turned in the **week of March 2<sup>nd</sup>** at your normal lab time (first 15 minutes of lab). **(20 points)**

***\*Procedure Proposal Scores are not Dropped\****

Pre-Lab Quizzes: For most experiments, you will be required to complete pre-lab quizzes. These will be online through Canvas and **must be**

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**completed by the starting time of your specific lab section the same week as the corresponding experiment.** You will have **2 attempts** with a maximum of **1 hour for each attempt** to complete the quiz. These quizzes will test your knowledge of the material corresponding to the experiment you are about to perform as well as any calculations you will need for the experiment in lab that week. These questions will be presented in the laboratory handouts and the quiz provides a means for you to check your answers and calculations prior to beginning your laboratory experiment.

There will be **no makeups for quizzes.** Your **lowest pre-lab quiz score will be dropped. (5 points each)**

- Safety Quiz: Due by **2 pm on Wednesday, Jan 29<sup>th</sup> FOR EVERYONE.** This quiz is given online through Canvas. It will test your knowledge of the information presented in the Safety Guidelines packet that is posted in “Modules” on Canvas as well as the information presented in this syllabus. **This quiz will not be dropped.** You will have 2 attempts (each a maximum of 1.5 hours from the time you start) to complete the quiz. **(5 points)**
- Checkout Points: Maintaining a clean lab area is essential to performing good chemistry and for general safety. **You must clean up and check out of your lab at the end of every lab period with your TA.** They will examine your lab area to ensure it is completely clean and everything is put away before you leave. Once they have ensured that your area is clean and marked you on their checkout sheet, you will receive 2 points for that day. Failure to check out with your TA properly will result in forfeiture of those points. It is YOUR responsibility to ensure that you clean up and checkout and that the TA marks you down for doing so. **7 checkouts are needed for full credit.** However, if you attend all 8 labs and properly check out/clean up, you will receive the additional 2 points as bonus points. **(2 points each lab)**
- Lab Make-Ups: There are **No Lab Make-Ups.** One of your lowest lab scores is dropped.
- Safety Guidelines: **You must bring a signed copy of the last page of the Safety Guidelines with you to the first day of lab.** The Safety Guidelines can be found on the Canvas course page under “Files.” You cannot be permitted into the lab unless you provide this signed document. **(no points)**

## Journal Article

### Writing

Assignment: You will be given a reference to a journal article related to a General Chemistry. You will use the SciFinder search database to locate and download the article, read it, and write a summary using prompt questions as a guideline. **(15 points)**

Oral Presentation: You will use one laboratory period to search Chemistry databases online and find a research article of your interest. You will then be asked to give a 10-minute individual oral presentation during your lab section during the last week of labs. This task is to help you develop skills on how to communicate scientific research as well as professional presentation skills. **(20 points)**

Grading: Grades will be entered on Canvas throughout the semester. You should double-check the entered grades for accuracy on a regular basis. If you believe there to be an error, contact your TA immediately with your concern. For this reason (and others), it is a good idea to **save your graded lab reports**.

Final grades will be assigned based on a scale *no harder than* the following:

93 and above:	A
90 to <93:	A-
87 to <90:	B+
83 to <87:	B
80 to <83:	B-
77 to <80	C+
73 to <77:	C
70 to <73:	C-
67 to <70	D+
63 to <67	D
60 to <63	D-
<60	E

### **Diversity/Inclusivity Statement**

My intent for this class is to create a space where students feel included, heard, and respected, and that students' diverse identities and backgrounds are valued and viewed as an asset. We all come to this course with unique life experiences, and there will be diversity of perspectives in our discussions. This diversity is our strength as we strive to communicate and connect across difference and build an inclusive and equitable learning community.

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**Wellness Statement.** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for *Student Wellness* at [www.wellness.utah.edu](http://www.wellness.utah.edu) or 801-581-7776.

**Campus Safety.** The University of Utah values the safety of all campus community members. To report suspicious activity, call campus police at [801-585-COPS \(801-585-2677\)](tel:801-585-COPS). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu).

**The Americans with Disabilities Act.** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the *Center for Disability & Access (CDA), 162 Olpin Union Building, 801-581-5020*. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability & Access.

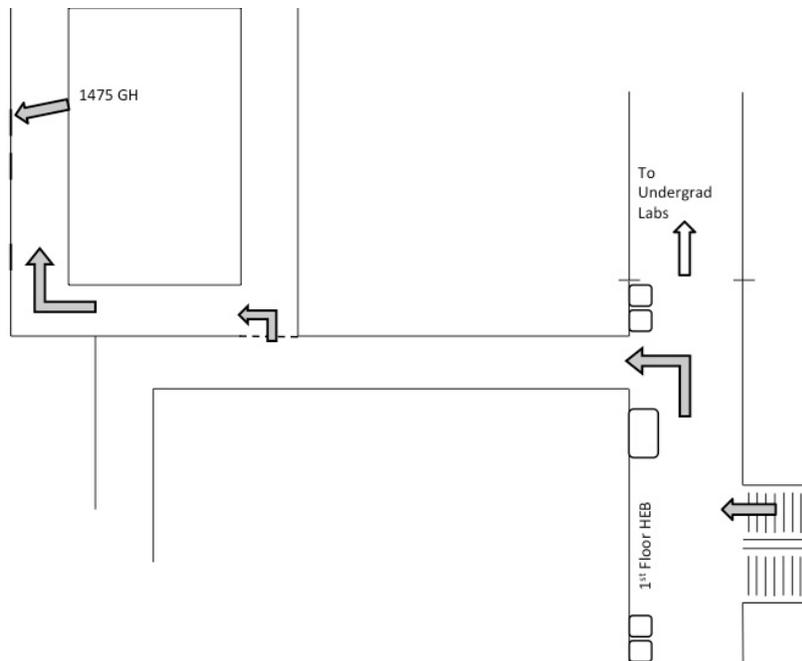
**Addressing Sexual Misconduct.** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the *Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066*. For support and *confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS)*.

**Pronouns.** Class rosters are provided to the instructor with the student's legal name as well as "preferred first name" (if previously entered by you in the Student Profile section of your CIS account, which can be managed at any time). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class or on assignments. Please advise me of any name or pronoun changes so I can help create a learning environment in which you, your name, and your pronoun are respected. If you need any assistance or support, please reach out to the LGBT Resource Center.  
[https://lgbt.utah.edu/campus/faculty\\_resources.php](https://lgbt.utah.edu/campus/faculty_resources.php)

**Accommodations for Student Athletes.** No special accommodations will be made for members of club sports. Varsity athletes will be accommodated, but it is the responsibility of the athlete to communicate with the instructor about making up assignments as well as about any grade concerns.

*\*This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Lab Schedule to accommodate the needs of our class. Any changes will be announced via your university listed email and/or posted on Canvas under Announcements.*

**Map of 1<sup>st</sup> Floor HEB - Arrows indicate how to find Saraf's office  
1475 GH (located in the NMR Grant Center)**



**Chemistry 1241 – Spring 2020**
**Instructor: Dr. Sushma Saraf**
**Lab Schedule (\*Note: There are No-Makeup Labs\*)**

Week of...	Wednesday	Thursday	Friday
Jan 6 <sup>th</sup> - 10 <sup>th</sup>	No Lab	No Lab	No Lab
Jan 13 <sup>th</sup> - Jan 17 <sup>th</sup>	Exp. 1 – Titrations: Soda vs. Vinegar Safety Guidelines Form Due in Lab	Exp. 1 – Titrations: Soda vs. Vinegar Safety Guidelines Form Due in Lab	Exp. 1 – Titrations: Soda vs. Vinegar Safety Guidelines Form Due in Lab
Jan 20 <sup>th</sup> - Jan 24 <sup>th</sup>	No Lab	No Lab	No Lab
Jan 27 <sup>th</sup> - Jan 31 <sup>st</sup>	Exp. 2 – Kinetics of Bleaching Safety Quiz Due 2 pm Exp. 1 Lab Report Due	Exp. 2 – Kinetics of Bleaching Exp. 1 Lab Report Due	Exp. 2 – Kinetics of Bleaching Exp. 1 Lab Report Due
Feb 3 <sup>rd</sup> - 7 <sup>th</sup>	Exp. 3 - Chemical Equilibrium: Le Chatliers Exp. 2 Lab Report Due	Exp. 3 - Chemical Equilibrium: Le Chatliers Exp. 2 Lab Report Due	Exp. 3 - Chemical Equilibrium: Le Chatliers Exp. 2 Lab Report Due
Feb 10 <sup>th</sup> - 14 <sup>th</sup>	Exp. 4 – Ice Melt Enthalpy of Dissolution and Fp Depression Exp. 3 Lab Report Due	Exp. 4 – Ice Melt Enthalpy of Dissolution and Fp Depression Exp. 3 Lab Report Due	Exp. 4 – Ice Melt Enthalpy of Dissolution and Fp Depression Exp. 3 Lab Report Due
Feb 17 <sup>th</sup> - 21 <sup>st</sup>	No Lab Journal Article Writing Assignment	No Lab Journal Article Writing Assignment	No Lab Journal Article Writing Assignment
Feb 24 <sup>th</sup> - 28 <sup>th</sup>	Chemistry Data Base Search for Oral Presentation Article Exp. 4 Lab Report Due Journal Article Writing Assignment Due	Chemistry Data Base Search for Oral Presentation Article Exp. 4 Lab Report Due Journal Article Writing Assignment Due	Chemistry Data Base Search for Oral Presentation Article Exp. 4 Lab Report Due Journal Article Writing Assignment Due
Mar 2 <sup>nd</sup> - 6 <sup>th</sup>	Exp. 5 – Enzyme Kinetics Dystan Medical Co. PP Due	Exp. 5 – Enzyme Kinetics Dystan Medical Co. PP Due	Exp. 5 – Enzyme Kinetics Dystan Medical Co. PP Due
Mar 9 <sup>th</sup> - 13 <sup>th</sup>	Spring Break - No Lab	Spring Break - No Lab	Spring Break - No Lab
Mar 16 <sup>th</sup> - 20 <sup>th</sup>	Exp. 6 – Electrochemistry Exp. 5 Lab Report Due	Exp. 6 – Electrochemistry Exp. 5 Lab Report Due	Exp. 6 – Electrochemistry Exp. 5 Lab Report Due
Mar 23 <sup>rd</sup> - 27 <sup>th</sup>	Exp. 7 – Dystan Medical Co. Exp. 6 Lab Report Due	Exp. 7 – Dystan Medical Co. Exp. 6 Lab Report Due	Exp. 7 – Dystan Medical Co. Exp. 6 Lab Report Due
Mar 30 <sup>th</sup> - 3 <sup>rd</sup>	Ex. 8 – Organic Chemistry: Soaps and Detergents Exp. 7 Lab Report Due	Ex. 8 – Organic Chemistry: Soaps and Detergents Exp. 7 Lab Report Due	Ex. 8 – Organic Chemistry: Soaps and Detergents Exp. 7 Lab Report Due
Apr 6 <sup>th</sup> - 10 <sup>th</sup>	Oral Presentations Exp. 8 Lab Report Due	Oral Presentations Exp. 8 Lab Report Due	Oral Presentations Exp. 8 Lab Report Due
Apr 13 <sup>th</sup> - 17 <sup>th</sup>	No Lab!	No Lab!	No Lab!
Apr 20 <sup>th</sup> - 24 <sup>th</sup>	Oral Presentations		