# CHEM 1112 General Chemistry II Laboratory

| | Professors | Sections |
|---|---|---|
| | Nimali Abeykoon, Ph.D | 102, 103, 113, 114, 121,122 |
| **Term** | **Spring 2023** | |
| **Meetings** | Workshops: SLC 1.202, SLC 3.102, SLC 2.203<br>Labs: SLC 1.205, SLC 1.211 | |

**Professor and TA's Contact Information**

| Name | Sections | Email Address |
|---|---|---|
| Nimali Abeykoon | 102, 103, 113, 114, 121,122 | Nimali.Abeykoon@utdallas.edu |
| Marie Mortensen | 102 | Marie.Mortensen@UTDallas.edu |
| Mauricio Martil De La Garza | 103 | mauricio.martil@utdallas.edu |
| Shubham Chatterjee | 113 | Shubham.Chatterjee@UTDallas.edu |
| Sarthi Polara | 114, 122 | Sarthi.Polara@UTDallas.edu |
| Cary Darwin | 121 | Cary.Darwin@UTDallas.edu |

The easiest way to contact an instructor and/or TA is via e-mail.
Every instructor and TA will check their e-mail frequently and they try to respond as fast as possible.
Please always include both – your TA and your instructor – in your e-mail.

**Office hours:**
Thursday: 11.00 AM -12.30 PM (SLC 3.306)

**General Course Information**

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| **Pre-requisites, Co-requisites, & other restrictions** | Passing Grades in both CHEM 1311 and CHEM 1111 (General Chemistry I Lecture and Lab) or equivalents. No Audits allowed. |
| **Course Description** | This course is a continuation of CHEM 1111, it incorporates experiments in kinetics, acid base chemistry, chemical equilibrium, electrochemistry, and colligative properties. |
| **Expected Learning Outcomes** | *Students should be able to:*<br>1. Use graphing techniques and data analysis to evaluate data<br>2. Think critically through the analysis of experimental data<br>3. Determine the rate law of a chemical reaction<br>4. Determine equilibrium constant of a chemical system<br>5. Explain the effect of various parameters on equilibrium of a chemical system,<br>6. Generate and interpret pH titration curves |
| **Required Texts & Materials** | • Access to online labs through LabFlow. https://labflow.com. You will need to purchase an access code either online through their website or through the University Bookstore. Login information is posted on eLearning course page.<br>Please make sure that you sign onto the correct lab section.<br>• A non-programming calculator for calculations. |

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| | • Access to eLearning.<br>• A notebook for recording your data.<br>• A combination code lock (shared with your lab group) |
| **Supplemental Texts, Readings, & Materials** | You may refer to the following material for a better understanding of the chemical principles.<br>• **Lecture Textbook:** *Chemistry: Atoms First, 4th Edition* (Julia Burdge, Jason Overby); McGraw-Hill. The textbook is available as an online version through ALEKS 360 that you purchase for your lecture CHEM 1311 class.<br>• OpenStax is a free online textbook for General Chemistry. You can download it at https://openstax.org/details/books/chemistry-atoms-first-2e |
| **Class Attendance** | Regular and punctual class attendance is expected regardless of modality. Students who fail to attend class regularly are inviting scholastic difficulty. |
| **Course Access and Navigation** | This course can be accessed using your UT Dallas NetID account on the eLearning website. Please see the course access and navigation section of the Getting Started with eLearning webpage for more information.<br>To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage.<br>UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service. |
| **Communication** | This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool such as TEAMS may also be used during the semester. For more details, please visit the Student eLearning Tutorials webpage for video demonstrations on eLearning tools.<br>Student emails and discussion board messages will be answered within 3 working days under normal circumstances. |
| **Student Resources** | Students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the eLearning Current Students webpage for more information. |
| **Server Unavailability or Other Technical Difficulties** | The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online eLearning Help Desk. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time. |
| **Classroom Materials** | The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct. |
| **Class Recordings** | Any recording made will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable |

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| | in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.<br><br>*The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.* |

## Assignments & Academic Calendar – CHEM 1112

There will be 11 lab experiments during the semester. There will be no makeup labs and you are required to attend your own Lab section.

**This schedule and timeline are subject to change at the discretion of the lab instructor.**

| Day | Exp. # | Experiment | Report Due |
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| Jan 23 -Jan 27 | 1 | Syllabus, Check-in & Lab Safety | Jan 30 -Feb 3 |
| Jan 30 -Feb 3 | 2 | Excel Exercise | Feb 6 -Feb 10 |
| Feb 6 -Feb 10 | 3 | Constant Pressure Calorimetry | Feb 13 -Feb 17 |
| Feb 13 -Feb 17 | 4 | Molar Mass Determination through Freezing Point Depression | Feb 20 -Feb 24 |
| Feb 20 -Feb 24 | 5 | Kinetics of Iodine Clock Reaction | Feb 27 -Mar 3 |
| Feb 27 -Mar 3 | 6 | Le Chatelier's Principle | Mar 6 – Mar 10 |
| Mar 6 – Mar 10 | 7 | Buffer Solutions | Mar 20 – Mar 24 |
| **Mar 13 – Mar 19** | **Spring Break** | | |
| Mar 20 – Mar 24 | 8 | Determination of Molar Mass and Identity of a Diprotic Acid | Mar 27 – Mar 31 |
| Mar 27 – Mar 31 | 9 | Determination of Solubility Product Constant | Apr 3 – Apr 7 |
| Apr 3 – Apr 7 | 10 | Entropy of Borax Dissolution | Apr 10 – Apr 14 |
| Apr 10 – Apr 14 | 11 | Voltaic Cell | Apr 17 – Apr 21 |

**Course Policies**

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| **Safety** | IMPORTANT: In accordance with University and Chemistry Department safety rules, any time anyone (student, TA, instructor, or visitor) is in a lab, Z87-rated safety eyewear must be worn. In addition, arms, legs, and feet should be covered in lab. Short pants and skirts (which expose calves or thighs) are not allowed. Sleeveless shirts (including spaghetti strap shirts), or shirts that expose your midriff are also not allowed—however, a lab coat may be worn over these shirts during lab. Closed-toed shoes that fully cover your foot are also required. Hair longer than shoulder length must be put up in an appropriate manner to keep it out of harm's way.<br>In summary, all students are responsible for all information inside the undergraduate safety manual uploaded on eLearning.<br>**Additional recommendation:** Read the additional safety documents in the safety folder on eLearning. |
| **Pre-labs** | **Prelabs will be conducted on LabFlow platform.**<br>Each week students are expected to prepare for the lab by:<br>A. Reading and understanding the experiment.<br>B. Answering **about 10-12 questions on LabFlow** for that particular lab. You will be given 2-hour window to complete the prelab quiz. You will have **two attempts** to complete the pre-lab quiz. It will be due the night before the lab at 11:59 pm (midnight). For example, if your lab section meets anytime on Thursday, the pre-lab for that exp. will be due at **11:59 PM** (midnight) on Wednesday in the same week.<br>It is imperative that you have read and UNDERSTOOD the lab prior to beginning the pre-lab quiz. Students are expected to take the pre-lab quiz on their own, without help from anyone or the internet. However, students are permitted to use materials on LabFlow and/or textbook during the pre-lab quiz.<br>***Students who do not complete the pre-lab quiz will receive a score of zero for that pre-lab.*** There will be no extensions provided for the pre-lab. |
| **Workshops (Lab Lecture)** | Workshops (Lab Lectures) are *open discussions* designed to help you understand the concepts and techniques involved in each experiment. The goal here is to make the lab experience more enjoyable by assisting students to reach a basic, overall understanding of the experiment and the science. It is advised to read and gain an initial understanding the lab prior to the lab period to be better prepared for both the discussion and the experiments.<br>**Attendance in workshop is mandatory. Failure to participate in the workshop will result in a 5-point deduction from lab grade. Repeated late arrivals will not be allowed to participate in the lab.** |
| **Post-Lab Assignments** | There are no formal lab reports required for this course. You will be entering your data on LabFlow. You will be performing the analysis of the data (2 attempts) and answering questions in LabFlow.<br>**Note** that the 2 attempts are independent of each other. For example: If you get Q.6 incorrect but Q.7 correct in your first attempt, then in your second attempt you need to change Q.6 and calculate new values for Q.7.<br>Most experiments will end with an executive summary of your lab.<br>You will be given a week of time to complete the post-lab write-up. For example, if your lab meets on Tuesday, Jan 31, 2023, the post-lab for that exp. will be due at **11:59 PM** (midnight) next Monday, Feb 6, 2023.<br>Note: A handout on writing an executive summary is posted on eLearning course page.<br>Late submissions will be deducted 5% for each late day. |

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| **Data** | Use scientific notations and rules of significant figures when manipulating your data to improve accuracy. 0.000789 does not equal to 0.0008, it's $7.89 \times 10^{-4}$. Calculating this way might improve % error. |
| **Grading (credit) Criteria** | **Summary of Points:**<br>Each experiment: Pts.<br>Pre-lab quiz 25<br>Post Lab Assignments 75<br>(data + executive summary)<br>Total 100<br>There are a total of 11 experiments.<br><br>Your final letter grade for the course will be determined using a scale such as the one below where the class average is set at the "B-/C+" border (e.g., 79.5 points):<br>A+ 97 & above C 73-76<br>A 93-96 C- 70-72<br>A- 90-92 D+ 67-69<br>B+ 87-89 D 63-66<br>B 83-86 D- 60-62<br>B- 80-82 F 59 & below<br>C+ 77-79<br>*Note: Each Section is a unique course; sections are not graded together, but we have uniform grading scales.*<br>*If you suspect that an assignment has been graded incorrectly, you have **one week**, after the assignment is returned to you, to contact the TA/instructor to have the grade changed.* |
| **Extra Credit** | None |
| **Comet Creed** | *This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:*<br><br>"As a Comet, I pledge honesty, integrity, and service in all that I do." |
| **UT Dallas Syllabus Policies and Procedures** | *The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.*<br>*Please go to http://go.utdallas.edu/syllabus-policies for these policies.* |

***These descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.***