

Instructor:	Dr. Terry Fernando
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E-Mail:	terry@iastate.edu (insert "177L, section #" to subject line to ensure a timely response; please use your section TA as primary contact for <i>basic</i> questions)
Instructor Office Hours:	M,W 9-10 or by appointment
Course Information:	http://courses.chem.iastate.edu/
Blackboard:	https://bb.its.iastate.edu/

*Chem 177 is a co-requisite for Chem 177L and visa versa. You must have taken or be enrolled in Chem 177 in order to take 177L. If you do not fulfill these requirements, you will not get credit for Chem 177L. **Students who drop or audit Chem 177 will be required to drop 177L and visa versa. The last day to drop CHEM 177L is June 19.***

Learning Objectives

(1) properly collect scientific data; (2) analyze and interpret a set of scientific data; (3) identify unknown substances with various techniques; (4) apply the law of conservation of mass to specific problems; (5) study the quantitative aspects of chemical reactions (empirical formula, stoichiometry, heat exchange, yield, etc.); (6) explore various chemical concepts (equilibrium, kinetics, thermodynamics, etc.)

Required Items:

Laboratory Text: Provided on the course Blackboard site.

Safety Eyewear: UVEX — Model S040C Safety Glasses or Jones & Co. Visorgogs or Magid Glove and Safety Manufacturing "Sapphire" safety glasses. Safety eyewear may be purchased at the bookstore. Other styles or types of protective eyewear will NOT be permitted without approval from the department safety officer or course instructor.

Safety eyewear is required in the laboratory at all times.

Personal Protective Equipment (PPE): Safety eyewear, gloves (provided), lab coat (provided) and fully covered shoes are important components for lab safety. **Sandals are not allowed.** You will not be allowed to do the experiment if you are not wearing closed toe shoes. **Goggles/lab coat/gloves are to be worn at all times in the lab. Please wear gloves when using the computer provided in lab.** A student caught without PPE in the lab will be asked to leave and will receive a zero for the day's ELN report. Repeated offenses will result in dismissal from the course. In addition, *you are NOT allowed to wear PPE out in the hallway* so as to avoid contamination.

Pre-lab Quizzes

You are expected to come to the laboratory prepared to do the work. Prior to each class you must have read the experiment reading and presentation (found on Blackboard). In order to encourage you to come to lab prepared, you **must** take a Pre-lab Quiz **before** coming to class. Pre-lab Quiz questions are based on the experiment presentation and your pre-lab writing and are designed to be completed in 10-15 minutes if you are prepared. Pre-lab quizzes are available online in Blackboard and generally open a week before the day of the experiment.

You are expected to complete the Pre-lab Quiz for the experiment before your class starts. Late Pre-lab Quizzes will receive 0 points. There are no make-up Pre-lab Quizzes. Pre-lab Quizzes are timed and auto-submitted: once started you will have 30 minutes to complete the quiz. You will be given up to two attempts (each 30 minutes) and the average of the scores of any attempts will be taken.

YOU MAY NOT TAKE PRE-LAB QUIZZES IN THE HELP CENTER. You may ask a TA as many questions before you take a quiz, but must take the quiz outside of the help center without TA help.

Electronic Laboratory Notebook

Your laboratory teaching assistant (TA) will discuss the electronic laboratory notebook at the check-in session during the first week of class. Laboratory experiments will be recorded using an electronic lab notebook (ELN) by LabArchives. In the laboratory, each student will have access to a provided computer. Your lab report will consist of four main parts: pre-lab writing (do not confuse this with the pre-lab quiz), in-lab notes, analysis questions, and reflective writing.

Pre-lab writing: You are expected to write the “pre-lab” part of the experiment prior to arriving in class (as evidenced by the timestamp). **Failure to have the pre-lab part completed before class will result in 0 points for that part of the lab report.**

In-lab notes: Changes to procedure, observations and data must be recorded on your ELN during your lab period (as evidenced by the timestamp). **Failure to have the notes completed DURING class will result in 0 points for that part of the lab report.**

Analysis Questions and Reflective writing: Analysis questions as reflective writing may be added after your lab period.

Finally, you must generate a pdf file of the ELN report and upload it on Blackboard **by 11:59 p.m. on the third day after the experiment** (e.g., for Monday labs, upload by 11:59 p.m. of Thursday). **Late lab reports will receive 0 points (no exceptions, no partial credit).**

Post-lab Quizzes

After completing the experiment, the goal is for you to carefully analyze what you did, how what you did ties into what you have done previously and what you are learning in lecture, and what your data means. The Analysis Questions given at the end of each experiment and your reflective writing are designed with this goal in mind. In order to reinforce careful analysis, you must take a Post-lab quiz after each experiment. Post-lab quizzes are based primarily on the analysis questions given for each experiment and are designed to be completed in 15-20 minutes if you are prepared. Post-lab quizzes are available online in Blackboard and generally open the first day of the experiment.

You are expected to complete the Post-lab Quiz for the experiment before your NEXT experiment lab class starts. Late Post-lab Quizzes will receive 0 points. There are no make-up Post-lab Quizzes. Post-lab Quizzes are timed and auto-submitted: once started you will have 30 minutes to complete the quiz. You will be given up to two attempts (each 30 minutes) and the average of the scores of any attempts will be taken.

YOU MAY NOT TAKE POST-LAB QUIZZES IN THE HELP CENTER. You may ask a TA as many questions before you take a quiz, but must take the quiz outside of the help center without direct TA help.

Safety Assignments

You have four Safety Readings for the first four labs. Each has a corresponding quiz. The first two safety quizzes are due at the end of the first week of classes and the second two are due the end of the second week of classes. See Blackboard for details.

Practical Tasks

During the semester you will have two Practical Tasks. These are mini practical exams designed to test your lab skills. They will occur during the first part of a lab period. You will do an experiment during the second part of the lab period. Details will be given on Blackboard and schedules are given below.

Lab Final

The lab final is a mini project. You will be required to perform experiments based on what you already have learned and that you plan yourself based on provided criteria. Details will be given on Blackboard and schedules are given below.

Drops

At the end of the semester, two Pre-lab Quizzes, two ELN reports and two Post-lab Quizzes will be dropped. These drops are provided to account such things for conflicting evening exams, required performances, class trips, extracurricular activity conflicts, and typical illness. If you miss two lab classes due to required academic events or a documented health/family issue, and find you have an additional conflict with your lab class, email your course instructor as soon as possible and before missing a third lab to discuss alternatives.

Lab Final, Practical Tasks, and the required lab check-out will not be dropped. If you have a conflict due to an academically required event or documented health/ family issue, email your course instructor ahead of time to discuss alternatives. Please note that rescheduling during summer is extremely limited.

Missed Experiments, Pre- and Post-lab Quizzes, Final Project, and Midterm Assessment

In general, **there are NO MAKE-UP experiments.** In addition, **you MUST attend your assigned lab section (there are no rescheduled labs).** You will not receive credit for experiments performed in the wrong lab section.

The remaining scores after your two drops will be used to calculate the final grade. Missed experiments, Pre-lab Quizzes, Post-lab Quizzes, Lab Final, and Practical Tasks will receive a score of zero, regardless of the circumstances.

Grading

The following takes into account dropped Pre-lab Quizzes, ELN Reports, (ELNs), and Post-lab Quizzes:

Pre-lab Quizzes	10 x 20 pts = 200 pts
Lab Reports	10 x 40 pts = 400 pts
Post Lab Quizzes	10 x 40 pts = 400 pts
Safety Assignments	4 x 4 pts = 16 pts
Practical Task 1	= 15 pts
Practical Task 2	= 28 pts
Lab Final	<u>= 85 pts</u>
Total points	1,144 pts

Grading scale for final grades: A > 93%, A- > 90%, B+ > 87%, B > 83%, B- > 80%, C+ > 77%, C > 73%, C- > 70%, D+ > 67%, D > 63%, and D- > 60%, and F < 60%.

Important Course Policies:

1. **It is the student's responsibility to make sure that lab reports and quizzes are properly uploaded/submitted by the deadline.** In case of technical problems, please email IMMEDIATELY your TA. Do not wait until the deadline has passed otherwise your work will not be graded.
2. It is the student's responsibility to check grades on Blackboard on a weekly basis.
3. Any complaint on a grade **MUST** be brought up within 1 week of receiving the returned graded work to have the grade corrected. No exceptions.
4. Use of personal electronic devices of any type (e.g., laptops and cell phones) is strongly discouraged in the lab unless instructed to do so by the TA. (for example, taking photos of experimental set-ups with cell phones). If you choose to use your own laptop, you do so at your own risk since it is a lab environment. Music streaming is not allowed.
5. Presence at Lab Check-out is mandatory. Lab Check-out must be done on the scheduled day at the scheduled time. **Failure to check-out will result in 0 points on your last submitted ELN Report.**

Getting Help:

- Take advantage of your TA's office hours in the help center (1761 Gilman)
- Take advantage of your instructor's office hours. (M,W 9-10 AM in 0757 Gilman or by appointment)

Academic Misconduct

Academic Misconduct in any form is in violation of ISU *Student Disciplinary Regulations* and will not be tolerated. This includes, but is not limited to: copying or sharing answers lab reports, plagiarism (including copying ANYTHING from the lab reading or presentation), submitting a lab report for an experiment not performed, and having someone else do your academic work. Depending on the act, a student could receive an F grade on the test/assignment, F grade for the course, and could be suspended or expelled from the University. See the Conduct Code at <http://www.dso.iastate.edu/ja> for more details and a full explanation of the ISU Academic Misconduct policies. In any case, the student will be reported to the Dean of the Students Office.

Students with Disabilities

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. All students requesting accommodations are required to meet with staff in Student Disability Resources (SDR) to establish eligibility. A Student Academic Accommodation Notification (SAAN) form will be provided to eligible students. The provision of reasonable accommodations in this course will be arranged after timely delivery and discussion of the SAAN form to the instructor. Please note that due to the laboratory nature of the course, low distraction and extra time in the lab classroom for experiments are not possible for logistical and safety reasons. However, we are committed to working with students to find solutions to enable successful completion of the course. Students are encouraged to deliver completed SAAN forms as early in the semester as possible. SDR, a unit in the Dean of Students Office, is located in room 1076, Student Services Building or online at www.dso.iastate.edu/dr/. Contact SDR by e-mail at disabilityresources@iastate.edu or by phone at 515-294-7220 for additional information.

177L Laboratory Tentative Experiment Schedule

Day	Dates	Lab #	Experiment
1	May 15,16	1	Safety Orientation, Check-in, and Intro to 177L, Safety Assignment 1
2	May 17, 18	2	Chemical and Physical Properties
3	May 22, 23	3	Measurements
4	May 24, 25	4	Polymers
5	May 29, 30	--	No Labs due to Memorial Day
6	May 31, Jun 1	5	Identifying a Chemical Reactant, <u>Practical Task 1</u>
7	June 5,6	6	Acid-Base Titrations
8	June 7,8	7	Heat Exchange in Chemical Processes
9	June 12,13	8	Chromatography and Forensic Chemistry, <u>Practical Task 2</u>
10	June 14, 15	9	Preparation and Properties of Salts Part 1
11	June 19, 20	10	Preparation and Properties of Salts Parts 2 and 3
12	June 21, 22	11	Periodic Trends
13	June 26, 27	12	Chemical Reactions in the Atmosphere
14	June 28, 29	--	<u>Lab Final</u>
15	July 3, 4	--	No Labs due to July 4th
16	July 5,6	--	Lab check-out - <u>Attendance is required</u>