Chemistry 167L Course Syllabus Spring 2021

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Office Hours: online via WebEx; by appointment. Send an email to sarachem@iastate.edu and insert "167L, section #, appointment request" to subject line. Attach your class schedule to the email and I will send you the info to join my WebEx.

CHEM 167 is a co-requisite for CHEM 167L, i.e., students in CHEM 167L must register for CHEM 167, but students in CHEM 167 are not required to take CHEM 167L. Students who drop or change to AUDIT classification in CHEM 167 must drop CHEM 167L and vice versa. Students may not register to audit CHEM 167 after 5:00 PM on February 5th. The audit does not count towards full-time student status. ***To add or drop lab sections during the first week of class, use AccessPlus. After the first week, please go to the Undergraduate Chemistry Office in 1608 Gilman (M-F 8 – 11:50 am and 1 – 5 pm). The last day to drop CHEM 167L is April 2nd.***

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, atomic spectroscopy, diffraction, electrochemistry, etc.)

Required Items:

Laboratory Text: Provided free of charge on the course Canvas site.

Due to Covid-19 concerns, goggles and face mask are mandatory in the laboratory.

Face Mask: Available for purchase from the bookstore. Any type of face covering (mask) is acceptable. It can be either a common disposable surgical mask or a reusable cloth mask.

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. If you already have goggles from other courses, you may use them as long as they are Z87 impact-rated. Other styles or types of protective eyewear will NOT be permitted without approval from the department safety officer or lab instructor (Dr. Pistolesi). ***Safety eyewear is mandatory in the laboratory at all times.***

Lab Coat: Available for purchase from the bookstore. If you already have a lab coat from other courses, you may use it as long as the fabric contains more than 50% cotton to ensure it is flame resistant.

Important Course Policies:

1. It is the student's responsibility to make sure that homework is 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 Canvas 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. Personal electronic devices of any type (e.g., laptops and cell phones) cannot be used in the lab. Students will be asked to leave their devices in their backpack. Students may be asked to take pictures with their cell phones of experiments set-ups or reaction products by their TA.
5. **Due to Covid-19 concerns, face mask is mandatory in the laboratory.**

Personal Protective Equipment (PPE): Safety eyewear, gloves (provided in lab), lab coat, face covering, 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 in proper attire. **Goggles/lab coat/gloves/face covering are to be worn at all times in the lab until all the chemicals have been put away. Please wear gloves when typing at the computer provided in lab.** A student caught without PPE in the lab will receive a 5-point penalty per instance on the final lab grade. Repeated offenses can result in dismissal from the course. All instructors and laboratory personnel are entitled to take points off. In addition, *you are NOT allowed to wear PPE out in the hallway* so as to avoid contamination. **Failing to follow these safety rules will result in the loss of 5 points for each offense starting from the second warning.**

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 appropriate chapter in the electronic lab manual (found on Canvas). You are expected to complete the **pre-lab quiz for the experiment before your class starts**. Pre-lab quizzes may include questions about safety readings (the reading material is found on Canvas). **Late pre-lab quizzes will have 0 points and may not be completed after the due date.** Pre-labs are timed quizzes: once started you will have 30 minutes to complete the quiz in one session. You will be given up to three attempts (each 30 minutes) and the average of the scores will be taken.

Laboratory Notebook: Your laboratory teaching assistant (TA) will discuss the 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 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, 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.** The only exception to this requirement will be the first two weeks of classes. This requirement will take place on week 3.

In-lab notes: Methods and observation 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 and Reflective writing: Graphs, final data analysis, and calculations as well as reflective writing may be added after your lab period.

Finally, you must submit your ELN **by 11:59 p.m. of three days after the experiment** (e.g., for Monday labs, submit by 11:59 p.m. of Thursday). **Late lab reports will have 0 points (no partial credit)**.

Post-lab quizzes must be completed before the next experiment. You will be given three attempts and 1 hour (for each attempt) to complete the quiz in one session. **Late post-lab quizzes will have 0 points and may not be completed after the due date.**

Safety assignments: You have four Safety readings for the first four labs. Each has a corresponding quiz. Safety assignments must be completed on-line on Canvas. They must be completed by the deadline (each Friday at 11:59 pm for the first 4 weeks). No excuses are accepted for missing a due date.

Missed Exams: Missed Practical Exams will be counted as zero.

Make-ups: You will be allowed ONE make-up for the entire semester. To qualify for a make-up, you need to be on a university-sponsored travel (certified by an official letter) OR provide a doctor's note in case of illness. No exceptions.

Pre-lab writing deadline will be still in place and you will have to complete the lab report with the usual deadline.

Due to Covid-19 concerns, classes are already filled at maximum occupancy in compliance with physical distancing rules. Therefore, physical reschedules are not possible. You will be provided with a video of the entire experiment to complete your lab report.

NOTE: Only approved lab report make-ups will be graded. All others will receive a zero. To get approval, please send an email to the professor and section TA (one single email with two recipients) with the following subject line "167L, section #, Make-up".

Grading: The score for each experiment is made up of three parts, each with a different weight: pre-lab quiz (6 × 20 pts = 120 pts), ELN report (6 × 40 pts = 240 pts), post-lab quiz (6 × 40 pts = 240 pts). In addition, the final grade will depend on four safety quizzes (4 × 4 pts = 16 pts), one syllabus post-lab quiz (20 pts), and one practical exam (15 pts). **Total pts = 651 pts**.

No grade drops, rounding, or curve will be applied.

Grading scale for final grades: A > 93.00%, A– > 90.00%, B+ > 87.00%, B > 83.00%, B– > 80.00%, C+ > 77.00%, C > 73.00%, C– > 70.00%, D+ > 67.00%, D > 63.00%, and D– > 60.00%, and F < 60.00%.

Statements

COVID-19 health and safety requirements: Students are responsible for abiding by the university's COVID-19 health and safety expectations (dso.iastate.edu/guidance-for-supporting-community-expectations-during-covid-19-pandemic). All students attending this class in-person are required to:

- properly wear a face covering and/or face shield, covering the nose and mouth, while in classrooms, laboratories, studios, offices, and other learning spaces. It is important to remember that a face mask is required to be worn whenever you are on campus, in the presence of others, and unable to maintain physical distance.
- practice physical distancing to the extent possible;
- assist in maintaining a clean and sanitary environment;
- not attend class if you are sick or experiencing symptoms of COVID-19 (for make-up you needto provide a doctor's note, or covid test proof);
- not attend class if you have been told to self-isolate or quarantine by a health official (for make-up you need to provide a doctor's note or quarantine/isolation official notification).

Follow the faculty member's guidance with respect to these requirements. **Failure to comply constitutes disruptive classroom conduct and will be reported to the Dean of the Students Office**. Faculty and teaching assistants have the authority to deny a non-compliant student entry into a classroom, laboratory, studio, conference room, office.

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 on tests or assignments, plagiarism (including from lab manual), submitting a lab report for an experiment not performed, and having someone else do your academic work. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office.

(https://www.studentconduct.dso.iastate.edu/academic-misconduct).

Accessibility Statement: Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online at www.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.

First amendment Statement: Iowa State University supports and upholds the First Amendment protection of freedom of speech and the principle of academic freedom in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

Laboratory Experiment Schedule **167L** **Spring 2021**

Week #	Week of		Experiment
1	Jan 25		**Safety Orientation, Lab Check-In, Chemical and Physical Properties (part 1)** **(Introduction to ELN online),** ***Safety Assignment 1***
2	Feb 1		Safety Orientation, Lab Check-In, Chemical and Physical Properties (part 1) (Introduction to ELN online), ***Safety Assignment 2***
3	Feb 8		**Chemical and Physical Properties (Part 2)**, ***Safety Assignment 3***
4	Feb 15		Chemical and Physical Properties (Part 2), ***Safety Assignment 4***
5	Feb 22		**Measurements**
6	Sep 21		Measurements
7	Mar 1		**Chemical Reactions in the Atmosphere**
8	Mar 8		Chemical Reactions in the Atmosphere
9	Mar 15		**The Phase Diagram for the Bismuth-Tin System + Practical Exam 1**
10	Mar 22		The Phase Diagram for the Bismuth-Tin System + **Practical Exam 1**
11	Mar 29		**Oxidation-Reduction Reactions**
12	Apr 5		Oxidation-Reduction Reactions
13	Apr 12		**Galvanic Cells**
14	Apr 19		Galvanic Cells
15	Apr 26		**TAs do Lab Check-out**