

CHEM 211L Course Syllabus Spring2021

Instructor: Dr. Robbyn Anand, 2101c Hach Hall, rkanand@iastate.edu

Instructor Help Session: TBD

Lab Supervisor: Dr. Feili Qin, 1279 Gilman Hall, email: flqin@iastate.edu

COVID-19 health and safety requirements

Students are responsible for abiding by the university's COVID-19 health and safety expectations. 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 covering and/or face shield 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;*
- *not attend class if you have been told to self-isolate or quarantine by a health official.*
- *follow the faculty member's guidance with respect to these requirements.*

Failure to comply constitutes disruptive classroom conduct. Faculty and teaching assistants have the authority to deny a non-compliant student entry into a classroom, laboratory, studio, conference room, office, or other learning space. These requirements extend outside of scheduled class time, including coursework in laboratories, studios, and other learning spaces, and to field trips. These requirements may be revised by the university at any time during the semester.

CHEM 211 and 211L are co-requisite courses, i.e., students in CHEM 211L are required to take CHEM 211L at the same time or to have already received credit in CHEM 211. Co-requisite course requirements are strictly enforced: Students who do not meet the co-requisite should drop the course or **they will receive an F in the course.** Students who drop or audit CHEM 211 will be required to drop CHEM 211L. To add lab sections during the first week of class, use AccessPlus. After the first week, please go to the Undergraduate Chemistry Office in 1608 Gilman.

Learning Objectives: 1) Attain lab skills for quantitative chemical analysis; 2) learn how to perform basic instrumental analysis; 3) know how to interpret and calculate data; and 4) work safely in the laboratory.

Laboratory Location: 1202 Gilman Hall

Laboratory Schedule:	Section	Time	Teaching Assistant
	1	Mon Wed 12:05 -2:55 PM	Jemima Lartey
	2	Mon Wed 3:20 – 6:10 PM	Rafael Blome
	3	Tue Thu 9:00 AM – 11:50 AM	Han Chen
	4	Tue Thu 12:10 PM – 3:00 PM	Sarah Szakas
	5	Tue Thu 3:10 PM – 6:00 PM	Stasia Harycki
	7	Mon Wed 7:45 – 10:40 AM	Miranda Emaus

Grading:	1) Quantitative Analysis (11 unknowns @ 50 points each)	550
	2) Notebook Checks (2 checks @ 100 points each)	200
	3) Pre-lab questions (11 pre-labs @ 15 points each)	165
	4) Lab Reports (11 lab reports @ 35 points each)	385
	5) <u>TA evaluation of students</u>	<u>50</u>
Total Points:		1350

The final grade distribution will be determined by the instructor at the end of the course. If there is an error in the gradebook, contact the Head TA.

- You must purchase a laboratory manual, a laboratory notebook, safety glasses or goggles, and a lock. **The laboratory notebook must be capable of making carbon copies. Quantitative Analysis Laboratory will meet in the first week of classes**; you will check in and need to lock your drawer. Important information regarding check-in procedures, safety, and laboratory notebooks contained in the lab manual will be covered. **Before Check In - Carefully read pages 1 - 12 of the Lab Manual.**
- **Lock, notebook, lab coat, and goggles are required by the second lab meeting.**
- **Pre-lab Questions:** Throughout the laboratory manual, there are pre-lab questions. Each student must answer all pre-lab questions IN THEIR NOTEBOOK and **submit COPIES of them before the student will be allowed to start the next experiment.** Thirteen out of fourteen pre-labs will be graded. **It is the student's responsibility to turn in the pre-lab before starting the experiment; pre-labs submitted late will not be graded.**
- **Issuing of Unknowns:** Your TA will issue the unknown samples (after receiving the pre-lab questions). Each sample has a number that must be entered in your laboratory notebook. This number is needed when reporting the results of the analysis. The number on the sample bottle should also be recorded into your notebook. You may not request an additional supply of your unknown. If you ask for more unknown, you will be issued a new one and it will be recorded as though you are repeating the experiment (see repeating an experiment below). **Results for an experiment must be reported within 1 week of completion of the experiment.**
- **Reporting of Unknown Results: The deadline for reporting the result of each laboratory analysis is one week** from the date the experiment was finished. You submit your lab results via Canvas.

Report the results from each trial you performed, and the mean and standard deviation of all the trials. If you eliminate a data point(s) because of experimental error, include any statistical analysis (i.e. t-test) you used to justify the rejection of the result(s). The grade for that experiment will be posted on Canvas. **Your notebook will be used to determine when the lab was completed.** The maximum score on a lab experiment is 50, and the minimum score for a completed lab is 20. Students who fail to complete an experiment will receive zero points for that experiment.

- **Calculation Errors and Repeating an Experiment:**

If an unsatisfactory score is received on an experiment due to calculation error, you may check for calculation errors and submit recalculated result. **Five points will be deducted for a recalculation.** Your TA will check your old calculation with the new calculation before it is accepted. Your TA will also check to see that your recalculation is written in your notebook prior to giving you a signed report slip. Only one recalculation is allowed per experiment, and it must be handed in one week after the initial grade is posted on Canvas.

If no calculation error was made and you are still dissatisfied with your score, you may repeat the experiment one more time using a different sample; **it is allowed only if there is sufficient time and the necessary apparatus is available.** This sample should be obtained from your TA when you are ready to repeat the experiment. **Five points will be deducted** from the grade received from the new experiment. The higher score between the two trials will be your final score for that experiment.

- **Lab Report Format:**

- Objective (1~ 2 sentences): 5 points
- Principles (1~ 2 paragraphs or half a page): 15 points
- Results and Discussion (show all the calculations) 15 points
- The whole report is up to 2-3 pages

The deadline for turning in the lab report of each laboratory analysis is one week.

All laboratory reports must be submitted on Canvas. Students who fail to turn in the lab report in one week after finishing the lab will receive zero points for that experiment.

- **Missed lab meeting: NO MAKE-UP lab time will be issued. In addition, you MUST attend your assigned lab section.**
- **Correlation with Lecture:** One of the objectives of the lab is to give you hands-on experience with the instruments and techniques discussed in lecture. Because of space limitations and the restricted number of devices, however, **some experiments will be performed before the corresponding concepts have been covered in lecture.** In such cases, you will understand the experiment much better and use your time in the lab more efficiently if you read through the corresponding section in the lecture textbook before doing the experiment. You are welcome to visit the class TA for help.

CHEM 211 LABORATORY

Safety Guidelines and Rules (pp. 1 – 7, lab manual):

- Safety goggles/glasses must be worn at all times. Failure to do so will result in a penalty of 10 points per each offense.
- No eating, drinking, or horseplay will be tolerated in the laboratories.
- No open-toed shoes can be worn (i.e., NO sandals).
- Cleanliness is mandatory; clean up all chemical spills immediately and dispose of all waste properly! You are responsible to clean up your own work area. In addition, you will be assigned cleanup duties to community areas (fume hoods, balance room, etc.) throughout the semester. **Failure to clean your designated area(s) will result in a penalty, 10 points each time.**

Laboratory Notebooks (pp. 10 – 12, lab manual; also see sample notebook in lab):

ALL DATA MUST BE RECORDED DIRECTLY IN THE NOTEBOOK. Recording data in your lab manual or unbound paper will result in a penalty to your grade.

- Must be capable of making carbon copies (duplicate pages).
- Permanently bound with numbered pages.
- Each entry must begin with the date, and signed and dated at the end of lab period.
- The beginning of each experiment should be clearly identified with its title.
- All writing must be in permanent ink (i.e. no pencil use).
- All data must be recorded directly onto the notebook with units.
- Errors should be crossed out with a single line; do not blotch out incorrect markings.
- All calculations must be done in the notebook (in ink).
- Chromatograms and calibration plots must be permanently fixed in the notebook.
- Pay attention to the instructions in the manual – some experiments require extra calculations or plots as explained in the lab manual.

Laboratory Preparation: It is imperative that you use your designated laboratory time effectively (**students are only allowed to work in the lab during their assigned section, unless special permission is approved**).

ALL STUDENTS MUST LEAVE THE LABORATORY ON TIME. You will need to work carefully and thoughtfully, which requires advanced preparation and planning.

- Read each experiment and fully understand prior to coming to the lab.
- If the theory of the experiment is unfamiliar, read the textbook material that corresponds to the technique.
- Answer all pre-lab questions (show your work) in your notebook on a separate page for the experiment you will begin that day prior to coming to lab. Pre-lab questions will be collected at the beginning of each lab period. **You will not be allowed to proceed with the experiment if you have not successfully answered all the pre-lab questions for that experiment.** If you are continuing with an experiment, you are not responsible for any prelab questions that day.

Teaching Assistants:

- Help sessions/office hours for help with calculations, pre-lab and practice questions. All office hours are virtual.

Section	Lab Time	TA	Office Hours	Email
1	MW 12:05 -2:55 PM	Jemima Lartey	TBA	jalartey@iastate.edu
2	MW 3:20 -6:10 PM	Rafael Blome	TBA	rblome@iastate.edu
3	TR 9 – 11:50 AM	Han Chen	TBA	hchen1@iastate.edu
4	TR 12:10 – 3:00 PM	Sarah Szakas	TBA	sszakas@iastate.edu
5	TR 3:10 – 6:00 PM	Stasia Harycki	TBA	sharycki@iastate.edu
7	MW 7:45 – 10:40 AM	Miranda Emaus	TBA	memaus@iastate.edu

Carefully read pages 1 - 24 of the Laboratory Manual and refer to often.

Check in: Monday January 25 & Tuesday January 26

1st Lab Experiment: Wednesday January 27 & Thursday January 28

Academic Integrity

Academic Integrity, based on the values of honesty, trust, fairness, respect, and responsibility, is a fundamental principle of scholarship in higher education. Iowa State’s Academic and Research Misconduct Policy prohibits: plagiarism (using another person’s writing or copying any work without proper citation); falsification; unauthorized collaboration during a test or on an assignment or substitution for another student to take an exam, course or test; and other forms of academic dishonesty. If you are to benefit from this class and be properly evaluated for your contributions, it is important for you to be familiar with and follow Iowa [State’s Academic Dishonesty and Research Misconduct policies](#). Students are also encouraged to review these [Student Resources](#). Work that violates this policy will not be tolerated. Students who are found responsible for a violation of the Academic Misconduct Policy will have both a university process sanction and an academic outcome that could include a failing grade on the assignment or exam, or a failing grade for the course.

Accessibility

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.

Discrimination and Harassment

Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, Hotline 515-294-1222, email eooffice@iastate.edu.

Free Expression

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.

Prep Week

This class follows the Iowa State University Prep Week policy, as noted in the ISU Policy Library and section 10.6.4 of the Faculty Handbook. Visit the [ISU Policy Library website](#) for policy wording.

Religious Accommodations

Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your professor at the earliest possible time. You or your instructor may also seek assistance from the [Dean of Students Office](#) at 515-294-1020 or [the Office of Equal Opportunity](#) at 515-294-7612.

Contact Information for Academic Issues: If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu