

Chem 357 Lab
Physical Chemistry 2 Lab – Quantum Chemistry & Spectroscopy

Instructor: _____

Email: _____

You need: Safety glasses/goggles, notebook, USB drive, custom HC lab manual

Optional: disposable gloves, paper towels

General information/policies:

1. **Safety glasses/goggles must be worn in the lab at all times** and chemicals and equipment must be handled in a safe and responsible manner.
2. You will work in pairs (or alone) for each of the six experiments this semester. You will have the same lab partner throughout the semester.
3. Before beginning each new lab, *at the start of the class* you must show a procedural summary (a flow chart) for the experiment. This is limited to one page and should be a brief working outline of how you plan to proceed. It should include (a) list of glassware that you need for the experiment, (b) any calculations for solutions or dilutions you must make. You should also describe what data you will need to collect and sketch all corresponding tables. The purpose of this flow chart is to organize your work and make sure you have read and understood the experiment prior to coming to class.
If you do not show the flow chart at the start of the class, you will not be allowed to continue with the lab and will be given a failing grade for the lab.
4. You are each expected to collect raw data in your notebooks during the experiments and to write and hand in your own lab report. At the end of each lab session you will need to get raw data in your notebook signed by the instructor. ***Data that has not been signed will not be accepted and you will be given a failing grade for the lab.***
5. At the end of each class, you are expected to put away your materials, clean up your bench area, and generally leave the lab in good condition with chemicals, etc. in their proper places.

Grading: During this semester you can accumulate up to 600 pts total.

Pre-labs: up to 10 pts each lab.

Lab reports: up to 100 points each (includes quality of data). See below.

Raw data and cleanup: up to 5 points each lab session.

Lab Schedule

	GROUP 1	GROUP 2	GROUP 3	GROUP 4
Week 1	CHECK IN	CHECK IN	CHECK IN	CHECK IN
Week 2	Solution Kinetics	Solution Kinetics	FRET	FRET
Week 3	MON SCHEDULE	MON SCHEDULE	MON SCHEDULE	MON SCHEDULE
Week 4	Solution Kinetics	Solution Kinetics	FRET	FRET
Week 5	Solution Kinetics	Solution Kinetics	FRET	FRET
Week 6	FRET	FRET	Solution Kinetics	Solution Kinetics
Week 7	FRET	FRET	Solution Kinetics	Solution Kinetics
Week 8	FRET	FRET	Solution Kinetics	Solution Kinetics
Week 9	Fluorescence	Fluorescence	Viscosity/Polymer	Viscosity/Polymer
Week 10	Fluorescence	Fluorescence	Viscosity/Polymer	Viscosity/Polymer
Week 11	Viscosity/Polymer	Viscosity/Polymer	Viscosity/Polymer	Viscosity/Polymer
Week 12	Viscosity/Polymer	Viscosity/Polymer	Fluorescence	Fluorescence
Week 13	Viscosity/Polymer	Viscosity/Polymer	Fluorescence	Fluorescence
Week 14	NMR	NMR	NMR	NMR
Week 15	CHECK OUT	CHECK OUT	CHECK OUT	CHECK OUT

Lab Reports (90 pts + 10 pts for pre-lab) should consist of the following:

Purpose: (5 pts) Brief description of the experiment and what is to be determined.

Abstract: (10 pts) Short summary of the report.

Experimental Methods: (10 pts) Brief outline. This should not copy the procedural summary. You should describe enough of your procedure so that another scientist could easily repeat your experiment. Tell exactly what you did using explicit values.

Results: (30 pts) Experimental data and data analysis (include calculations (sample) and use tables/graphs when possible). Error analysis (statistical analysis and assessment of experimental flaws).

Discussion: (20 pts) Importance of results and comparison to literature values where appropriate (e.g., discuss why somebody might need to do the study of this type).

Literature (5 pts)

Raw data: signed, copy attached (10 pts)

Results and discussion are the most important parts.