

**Chem 355 Lab**  
**Physical Chemistry 1 Lab – Thermodynamics and Kinetics**

**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

Wed	Group 1	Group 2	Group 3	Group 4
Week 1	Check in	Check in	Check in	Check in
Week 2	Calorimetry	Calorimetry	Calorimetry	Calorimetry
Week 3	Calorimetry	Calorimetry	Calorimetry	Calorimetry
Week 4	No classes	No classes	No classes	No classes
Week 5	Methyl Red	Methyl Red	Methyl Red	Methyl Red
Week 6	Methyl Red	Methyl Red	Methyl Red	Methyl Red
Week 7	Kinetics	Kinetics	Bi Liq-vap	Bi Liq-vap
Week 8	Kinetics	Kinetics	Bi Liq vap	Bi Liq vap
Week 9	Bi-liq vap	Bi liq vap	Kinetics	Kinetics
Week 10	Bi-liq vap	Bi liq vap	Kinetics	Kinetics
Week 11	Electrochem	Electrochem	Electrochem	Electrochem
Week 12	Electrochem	Electrochem	Electrochem	Electrochem
Week 13	Sol 2 phase	Sol 2 phase	Sol 2 phase	Sol 2 phase
Week 14	Sol 2 phase	Sol 2 phase	Sol 2 phase	Sol 2 phase
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.

### **Hunter College required statements for syllabi**

1. Academic Integrity Statement: “Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.”
2. ADA Statement: “In compliance with the ADA and with Section 504 of the Rehabilitation Act, Hunter College is committed to ensuring educational access and accommodations for all its registered students. Hunter College’s students with disabilities and medical conditions are encouraged to register with the Office of AccessABILITY for assistance and accommodation. For information and appointment contact the Office of AccessABILITY located in Room E1214 or call (212) 772-4857 /or VRS (646) 755-3129.”
3. Hunter College Policy on Sexual Misconduct “In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.
  - a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).
  - b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.CUNY Policy on Sexual Misconduct Link: <http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf>”