

Course Outline (REVISED)
CHEM 1023: General Chemistry 2, Winter 2022

Lectures			Location
WI01:	Dr. Vlad Zamlyunny	M/W/F: 8:30am – 9:30am	ELL 207
WI02:	Dr. John Murimboh	M/W/F: 9:30am – 10:30am	CAR 203
WI03:	Cathy Murimboh	M/W/F: 10:30am – 11:30pm	CAR 203
WI04:	Dr. Vlad Zamlyunny	M/W/F: 11:30pm – 12:30pm	ELL 207

Office Hours	Instructor	Email	Location
Mon., 1:00-4:00	Dr. Vlad Zamlyunny	vlad.zamlyunny@acadiau.ca	via Teams
Tues., 1:00-4: 00	Dr. John Murimboh	john.murimboh@acadiau.ca	via Teams
Wed., 1:00-4:00	Cathy Murimboh	catherine.murimboh@acadiau.ca	via Teams
Labs	Ashely Parsons	ashley.parsons@acadiau.ca	via Teams

Chemistry Help Centre	Location
Mon/Tue/Wed.: 6:00 – 9:00 pm	ELL 303 and via Teams

Textbook
Chemistry: A Molecular Approach (3 rd Canadian Edition) Tro, Nivaldo J., Travis Fridgen, and Lawton Shaw Pearson Canada, 2019 Note: older editions are also acceptable
Alternate Textbooks
1. Principles of General Chemistry v1.0 (Averill and Eldredge) [HTML] 2. Chemistry Virtual Textbook (Stephen Lower, Simon Fraser University) [HTML] 3. Any first-year chemistry textbook

LEARNING, TEACHING, AND ASSESSMENT INFORMATION

Assessment		
Labs	20%	
Assignments	10%	Best 7 Assignments
Midterm 1	15%	Thursday March 10, 7:00 pm
Midterm 2	15%	Thursday March 31, 7:00 pm
Final Exam	40%	TBA
Total	100%	

Students with a valid excuse (e.g. illness) must contact their instructor at least one hour prior to the start of the midterm to be excused. The weight of the midterm will be transferred to the final exam. **Students who miss all three midterms, regardless of the reason, will receive a failing grade in the course.**

The lowest midterm grade will be dropped, and the weight placed on the final exam (i.e. final worth 55% instead of 40%) IF it improves the student's final grade.

Labs

Instructor: Ashley Parsons, ashley.parsons@acadiau.ca

Labs begin **January 17th**. All lab sessions are **mandatory and attendance will be taken**. For at least the first week, labs are **virtual synchronous (i.e. live via Teams)**, and you are required to attend your lab at the scheduled time:

1020 WI01 section: Monday, Jan. 17, 1 pm

1020 WI02 section: Tuesday, Jan. 18, 1 pm

1020 WI03 section: Wednesday, Jan. 19, 1 pm

1020 WI04 section: Thursday, Jan. 20, 1 pm

1020 WI05 section: Friday, Jan. 21, 1 pm

To attend a lab: Go to the Chem 1020 Labs Team and click to join the available meeting 5 mins before your lab is set to begin (or earlier).

All live communication for the week of Jan. 17th (Lab sessions, Ashley's office hours, TA help sessions) will be through the **Chem 1020 Labs Site via Microsoft Teams**.

Please click on the following link asap (and before Jan. 17), as Ashley needs to grant permission to all that click the link.

Here is the link for our Chem 1020 Labs Site:

[\[click here\]](#)

Assignments

Due: Thursdays at 11:30pm (NO EXCEPTIONS)

Late assignments automatically receive a grade of zero. There are no exceptions, including illness or power failures. i.e. Do not wait until the last minute to work on the assignments!

Course Description

An introductory treatment of chemical kinetics and equilibria, thermochemistry, entropy and free energy, electrochemistry, phase equilibria and properties of solutions, and structure and properties of solids.

Assessment will be by assignments, examination, and submission of laboratory reports.

Topics

Unit 1: Kinetics

Unit 2: Thermochemistry

Unit 3: Spontaneity

Unit 4: Chemical Equilibrium

Unit 5: Electrochemistry

Unit 6: Phase Equilibrium and Solutions

Unit 7: Solids

Learning Outcomes

Knowledge and understanding

1. Calculate the relative rates of change of reactant/product concentrations
2. Determine reaction order using the method of initial rates
3. Use integrated rate laws to calculate reactant concentrations or time elapsed
4. Use the Arrhenius equation to determine rate constants at a different temp.
5. Understand and label energy profile diagrams
6. Calculate heat transfer, work, and total internal energy of a system
7. Use heating/cooling curves to find total heat transferred to/from a substance
8. Calculate $\Delta_r H^\circ$ using Hess' Law, bond dissociation enthalpies, and stoichiometry
9. Use coffee cup calorimetry and bomb calorimetry
- ~~10. Compare the relative standard entropies of various substances~~
11. Calculate standard entropy change and standard Gibbs energy change
12. Predict the direction of a reaction under a given set of conditions
13. Interconvert between ΔG° and K; ΔG and Q
14. Use ICE tables to calculate concentrations or K
15. Calculate the solubility of a salt and determine if pH affects its solubility
16. Predict the effect of various stresses on the equilibrium position
17. Balance redox reactions
18. Represent an electrochemical cell using short-hand notation
19. Calculate E°_{cell} , ΔG° and K for an electrochemical cell
20. Calculate E_{cell} for an electrochemical cell with non-standard concentrations
21. Calculate vapour pressure or boiling point with Clausius-Clapeyron equation
22. Understand and label phase diagrams
23. Calculate solubility of a gas in a liquid using Henry's Law
24. Quantify colligative properties: vapour pressure lowering, boiling point elevation, freezing point depression, osmotic pressure

Accessible Learning Services

If you are a student with documentation for accommodations or if you anticipate needing supports or accommodations, please contact Marissa McIsaac, Manager, at 902-585-1291, or disability.access@acadiu.ca. Accessible Learning Services is located in Rhodes Hall, rooms 111-115.

Academic Integrity

It is your responsibility to acquaint yourself with the university policy on academic integrity. Academic dishonesty such as cheating, and plagiarism are not tolerated. Any form of academic dishonesty in examinations, tests, labs, or assignments is subject to serious academic penalty. The full description of the penalties associated with academic dishonesty is outlined in the 2021/2022 Academic Calendar.

- Cheating is copying or the use of unauthorized aids or the intentional falsification or invention of information in any academic exercise
- Plagiarism is the act of presenting the ideas or words of another as one's own. Students are required to acknowledge and document the sources of ideas used in their written work.
- Self-plagiarism is also a form of plagiarism. It is the presentation of the same work in more than one course without the permission of the instructors involved.
- A student who knowingly helps another commit an act of academic dishonesty is equally guilty.
- Penalties are levied in relation to the degree of the relevant infraction. They range from failure on that piece of work, to failure in the course, to dismissal from the university.