ACADIA UNIVERSITY

Course Outline
CHEM 1023: General Chemistry 2, Winter 2021

Lectures			Location
Section 1023A2:	Dr. Vlad Zamlynny	M/W/F: 8:30am – 9:30am	ELL 207
Section 1023B2:	Cathy Murimboh	M/W/F: 10:00am – 11:00am	CAR 203
Section 1023C2:	Cathy Murimboh	M/W/F: 11:30am – 12:30pm	ELL 207
Section 1023D2:	Dr. Vlad Zamlynny	M/W/F: 1:00pm – 2:00pm	ELL 207

Office Hours	Instructor	Email	Location
Mon., 2:30-3:30	Dr. Vlad Zamlynny	vlad.zamlynny@acadiau.ca	via Teams
Tues., 1:30-4:30	Cathy Murimboh	catherine.murimboh@acadiau.ca	via Teams
Wed., 2:30-4:30	Dr. Vlad Zamlynny		via Teams
Labs	Ashely Parsons	ashley.parsons@acadiau.ca	via Teams

Chemistry Help Centre	Location
Mon/Tue/Wed.: 6:00 – 9:00 pm (Tuesdays start at 6:30 pm)	ELL 303 and on Teams

Textbook
Chemistry: A Molecular Approach (3rd 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 10 Assignments
Midterm 1	10%	Thursday Feb. 11, 7:00 pm
Midterm 2	10%	Thursday March 4, 7:00 pm
Midterm 3	10%	Thursday March 25, 7:00 pm
Final Exam	40%	Saturday, April 24, 9:00 am
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.**		

Labs

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

Labs begin **January 25th**. All lab sessions are ***mandatory* and attendance will be taken.** Labs this term are **virtual synchronous (i.e. live),** and you are required to attend your lab at the scheduled time:

1020 A2: Mondays, 4:00 pm
1020 B2: Tuesdays, 2:30 pm
1020 C2: Wednesdays, 4:00 pm
1020 D2: Thursdays, 2:30 pm
1020 E2: Fridays, 4:00 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 this term (Lab sessions, Ashley's office hours, TA help sessions) will be through the **Chem 1020 Labs Site via Microsoft Teams**.

Anyone that registered for the lab prior to Dec. 17, 2020 is automatically part of the Team. Anyone that registered later must click on the link below for approval (please try this before the day you have lab).

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.

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

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 $\Delta_r H°$ 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 $\Delta G°$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 $E°_{cell}$, $\Delta G°$ 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 Ian Ford, Accessibility Resource Facilitator at 902-585-1520, disability.access@acadiau.ca or Marissa McIsaac, Manager, disability.access@acadiau.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 2020/2021 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.