

CHEM 025A, Chemistry 025*6 credits, 6 hours lecture*

Chemistry 025 begins with an introduction to elements and the Periodic Table, followed by atomic theory and periodicity chemical bonding and types of compounds, chemical nomenclature, and chemical reactions. The remainder of the course focuses on calculations involving measurements in chemistry, the metric systems (SI), and scientific notation as applied to gases, solutions (including acids and bases), and stoichiometry.

Alberta Education Course Equivalency: Science 10 (Chemistry unit) and Chemistry 20
Corequisite: MATH 010C

Instructor

Linda Milette
CC-205R
780-791-4830
linda.milette@keyano.ca

Office Hours

Mondays	12:00 – 12:50 PM
Tuesdays	3:00 – 3:50 PM
Wednesdays	3:00 – 3:50 PM
Thursdays	1:00 – 1:50 PM
Fridays	3:00 – 3:50 PM

Hours of Instruction

Monday Lectures	10:00 - 11:50 AM	Room CC283
Wednesday Lectures	10:00 - 11:50 AM	Room CC283
Thursday Lectures	3:00 - 4:50 PM	Room CC283

Required Supplies

CHEMISTRY 25 Student Manual (available at the bookstore)

Scientific Calculator – Does not have to be a graphing calculator.

* If you are a **new user**, please purchase a **Texas Instrument calculator (TI – 30Xa)**. This is what I use and therefore I can quickly help you use it correctly. It is inexpensive and broadly available in stores.

Course Outcomes

Upon successful completion of this course, students will be able to:

- Recognize the main branches of Science and explain the scientific method
- List the five branches of Chemistry
- Describe the basic particles that make up the underlying structure of matter
- Explain the Atomic Theories leading to the modern structure of the atom (Dalton, Thomson, Rutherford and Bohr)
- Describe the three subatomic particles that make up the atom.
- Explain the division of elements in the periodic table
- Identify and characterize of elements in groups and periods
- Explain the chemical bonding and properties of compounds
- Classify and explain the structure of compounds.
- Write names and formulas for compounds
- Apply VSEPR theory to predict molecular shapes for molecules
- Explain the types of intermolecular forces
- Recognize the systematic chemical name of binary, ternary and higher compounds
- Recognize the difference between precision vs accuracy, types of errors and significant digits
- Employ the measurement system for unit conversion and density problems.
- Apply the mole concept for calculation of molar mass, moles of elementary units, and molar volume of gas
- Explain molecular behavior, using models of the gaseous state of matter.
- Investigate solutions, describing their physical and chemical properties
- Describe molar concentration, molar concentration of ions in solution, and dilutions
- Describe acidic and basic solutions qualitatively and quantitatively
- Explain how balanced chemical equations indicate the quantitative relationships between reactants and products involved in chemical changes.
- Use stoichiometry in quantitative analysis.

Evaluation

Class assignments	20 %
Quizzes	20 %
Midterm Exam (Unit 1 – 3)	30 %
Final Exam (Unit 4 – 6)	30 %
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TOTAL	100 %

The minimum pre-requisite for progression is 1.7 (refer to Grading System below)

Grading System

Descriptor	4.0 Scale	Percent
Excellent	4.0	96 – 100
	4.0	90 – 95
	3.7	85 – 89
Good	3.3	81 – 84
	3.0	77 – 80
	2.7	73 – 76
Satisfactory	2.3	69 – 72
	2.0	65 – 68
Minimum Prerequisite	1.7	60 – 64
Poor	1.3	55 – 59
Minimum Pass	1.0	50 – 54
Failure	0.0	0 – 49

Proposed Schedule of Topics

Unit I—Matter and Atomic Structure

- Section A: Introduction to Chemistry
- Section B: Basic Concepts of Matter
- Section C: The Structure of the Atom
- Section D: Introduction to the Periodic Table

Unit II—Structure of Compounds

- Section A: The Structure of Compounds
- Section B: Writing Formulas for Ionic and Molecular Compounds
- Section C: Intermolecular Forces

Unit III—Chemical Nomenclature

- Section A: Valence and Oxidation Numbers
- Section B: Chemical Nomenclature

MIDTERM EXAM (Units I – III)

Unit IV—Calculations in Chemistry as applied to Gases

- Section A: Mathematics in Chemistry
- Section B: Measurements in Chemistry
- Section C: The Mole Concept
- Section D: Gas Laws

Unit V—Calculations in Chemistry as applied to Solutions

- Section A: Characteristics of Solutions
- Section B: Preparing Solutions
- Section C: Acids and Bases

Unit VI—Chemical Reactions and Stoichiometry

- Section A: Writing and Balancing Chemical Equations
- Section B: Stoichiometry

FINAL EXAM (Units IV – VI)

Calendar of Important Events

Dates on the following calendar are tentative; shaded areas indicate no Chemistry 025 classes.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	Sept 2 Labour Day Holiday	3 Orientation Day	4 Introduction Unit 1A First day of classes	5 Unit 1B Matter	6
2	9 Unit C Atoms	10	11 Unit 1C Atoms	12 Unit 1D Periodic Table	13
3	16 Unit 2A Compounds	17	18 Unit 2B Writing Formulas	19 Unit 2B Writing Formulas	20
4	23 Unit 2C Intermolecular Forces	24	25 Unit 2C Intermolecular Forces	26 Unit 2C Intermolecular Forces	27
5	30 Unit 3A Valence/Oxidation	Oct 1	2 Unit 3A Valence/Oxidation	3 Unit 3B Nomenclature	4
6	7 Unit 3B Nomenclature	8	9 Unit 3B Nomenclature	10 Unit 4A Math	11
7	14 Thanksgiving Day Holiday	15	16 MIDTERM EXAM UNIT 1 -3	17 Unit 4B Measurements	18
8	21 Unit 4C Mole Concept	22	23 Unit 4C Mole Concept	24 Unit 4D Gas Laws	25
9	28 Unit 4D Gas Laws	29	30 Keyano College PD Day—no classes	31 Unit 5A Solutions	Nov 1
10	4 Unit 5A Solutions	5	6 Unit 5B Preparing Solutions	7 Reading Day—no classes	8 Reading Day—no classes
11	11 Remembrance Day Holiday	12	13 Unit 5B Preparing Solutions	14 Unit 5C Acids/Bases	15
12	18 Unit 5C Acids/Bases	19	20 Unit 5C Acids/Bases	21 Unit 6A Chemical Equations	22
13	25	26	27 Unit 6A Chemical Equations	28 Unit 6B Stoichiometry	29
14	Dec 2 Unit 6B Stoichiometry	3	4 Unit 6B Stoichiometry	5 REVIEW Last day of classes	6
15	9 EXAMS	10 EXAMS	11 EXAMS	12 EXAMS	13 EXAMS
16	16 EXAMS	17 EXAMS	18	19	20

Please Note:

Date and time allotted to each topic is subject to change.

Final exams are scheduled by the College. Do not book travel until December 18, 2019.

Please note that deferred exams will NOT be approved for travel, even if the travel was booked prior to enrolling in the course.

Course Specific Policies

1. **Attendance Policy:** Chemistry 25 is designed as a **face-to-face course**, so success is improved by being on time and regularly attending. Extended or frequent absences *for any reason cannot* be accommodated and can impact your overall mark. Some suggestions for handling occasional lecture absences include:
 - a. checking the Calendar of Events, News Forum and slide notes by logging into ilearn.keyano.ca
 - b. finding a “classroom buddy” whom you can contact for details regarding what you have missed.
 - c. check your Keyano email frequently, as notices posted to the ilearn forum automatically go there.
2. **Electronic devices policy:**
 - a. Texting and personal web browsing is **NOT permitted** during class lecture time.
 - b. Some students find usage of tablets and laptops to follow slides very helpful during lectures, so you are welcomed to bring these to class **for instructional purposes only**.
 - c. Sounds on all cell phones should be turned off during class and if you need to take an important call please leave the room to avoid disrupting others. **Please note that using electronic devices to record the class in any way (audio, video, photos, etc.) is not permitted.**
3. **Late Work Policy:** assigned work must be received in hard copy and in person. It will receive
 - a. full marks when received in person on the due date.
 - b. the earned grade, minus 10%, for each day late.
 - c. a mark of zero if received after I have returned the assignment. I do not accept work pushed under my office door.
 - d. No late work will be accepted once keys are posted or marked assignments are returned.
4. **Other Course Policies and Procedures:**
 - a. **Work submitted by non-attending students may not be marked.**
 - b. Any work showing evidence of copying or plagiarism will receive a mark of zero. (see “Student Rights and Responsibilities” in the Credit Calendar).
 - c. MOODLE quizzes will not be reopened for ANY reason.
 - d. In-class quizzes cannot be rewritten, as these are meant to give you immediate feedback on your progress. A quiz can be omitted with valid medical documentation only.
 - e. A missed exam may be written at an alternate time only under certain *exceptional* circumstances, *at the instructor’s discretion*. The instructor must be contacted within 24 hours of the scheduled exam, and documentation (e.g. a doctor’s note) provided.
 - f. The final exam will be written on the date scheduled by the College; otherwise, the procedure for “Deferred Final Examination” in the Credit Calendar is to be followed.

Should you have trouble logging into ilearn.keyano.ca, please contact Keyano College Information and Technology Services (its.helpdesk@keyano.ca or 780-791-4965).

Performance Requirements

Student Responsibilities

It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College credit calendar.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a student's learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

Specialized Supports

The Student Academic Support Services (SASS) department: Accessibility Services, Skill Centre, Wellness Services and Student Life Department work together to support student success at Keyano College.

Accessibility Services (CC167) supports student success through group and individualized instruction of learning, study and test taking strategies, and adaptive technologies. Students with documented disabilities, or who suspect a disability, can meet with the Learning Strategists to discuss accommodation of the learning barriers that they may be experiencing. Students who have accessed accommodations in the past are encouraged to visit our office at their earliest opportunity to discuss the availability of accommodations in their current courses. Individual appointments can be made by calling 780-791-8934.

Skill Centre (CC119) provides a learning space where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff. Students visiting the centre have access to one-to-one or group tutoring, facilitated study groups, and assistance in academic writing. The Skill Centre's Peer Tutor program provides paid employment opportunities for students who have demonstrated academic success and want to share what they have learned. Tutoring is available free to any students registered at Keyano College on a drop in basis, from 8:30 am to 5:00 pm Monday through Friday. Additional evening hours are subject to tutor availability and are posted in the Skill Centre.

Wellness Services (CC260) offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators offer a safe and confidential environment to seek help with personal concerns. The Mindfulness Room in CC260 is available as a quiet space for students to relax during regular office hours. Wellness Service welcomes students to participate in any of the group sessions offered throughout the academic year addressing such topics as Mindfulness and Test Anxiety. Individual appointments can be made by calling 780-791-8934.

Student Life Department (CC210) is a place for students to go when they don't know who else can answer their questions. The staff will help students navigate barriers to success and if they don't know the answer, they will find it out. Student success is directly affected by how connected a student feels to their college. The student life department is there to help students get connected.

Please watch your Keyano email for workshop announcements from our Student Academic Support Services team.