CHEM 1000 - Spring 2020 *General Chemistry I*

Section A: Monday, Wednesday, Friday 12:00-12:50 pm PE 275

	Instructor	E-mail	Office	Office Hours	Phone
Lecture	Dr. Greg Patenaude	greg.patenaude@uleth.ca	SA8456	open-door policy	329-2310
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Text	***Chemistry The Molecular Nature of Matter and Change, Second Canadian Edition*** by Martin S. Silberberg, Patricia Amateis, Sophie Lavieri & Rashmi Venkateswaran (McGraw-Hill Ryerson)
Websites	• http://scholar.ulethbridge.ca/susanfindlay/book/chem-1000 has practice questions, practice tests, etc. • Moodle will be used to track grades and for semester-specific materials like this course outline.

Course Overview: CHEM 1000 is the first half of a full year course in general chemistry. The second half of the course, CHEM 2000, should ideally be taken within one year of completing CHEM 1000. The goals of these courses are to introduce you to university-level chemistry and to give you an appreciation for the diversity of the field. Learning chemistry is a building process and, in CHEM 1000, we will begin by studying the structure and properties of atoms, the building blocks of matter. We will then study the properties of the different elements – how they are obtained and how they interact. In doing so, we will also learn about molecular structure and geometry, acid-base chemistry, nuclear chemistry, first order kinetics, and applications such as spectroscopy and chromatography.

Prerequisites: The prerequisites for this course are (a) grade 12 chemistry or equivalent and (b) grade 12 math (Math 30-1) or equivalent. In exceptional circumstances, students lacking the prerequisites may be permitted to remain in the course provided they have obtained a prerequisite waiver from the Department of Chemistry and Biochemistry. Grade 12 physics and calculus (Physics 30 and Math 31) are also recommended.

Grade Composition: Two methods will be used to calculate your final mark in the course, and you will automatically be assigned the better of the two marks. **In order to qualify for Method 2, you must attempt both midterms.** Be aware that it is a very bad plan to neglect preparing for the midterms expecting that you can cram for the final to bring up your mark. Because the concepts build on each other, it's impossible to learn chemistry in a couple of days.

	Dates	Method 1	Method 2
Laboratory	*see laboratory schedule*	25%	25%
Online Assignments°	due each Sunday at midnight	10%	10%
Midterm Tests	Thurs. Feb. 13th and Mar. 12th (6:30-8:00pm)*	2 × 15% = 30%	0%
Final Exam	ROSS posts final exam schedule after add/drop	35%	65%
	Total	100%	100%

YOU MUST PASS BOTH THE LABORATORY (12.5/25) AND LECTURE (37.5/75) PORTIONS OF THE COURSE SEPARATELY IN ORDER TO PASS THE COURSE.

****The midterms are on Thursday evenings. If you have a direct conflict with them, you must contact your instructor at least one week before the test to arrange to write at an alternative time.***

°Online assignments are a required course component. To complete these assignments, register with Sapling Learning (http://saplinglearning.ca). Sapling can be accessed at no cost in the University of Lethbridge library building. Students who want to access Sapling from elsewhere can do so for a cost of $42 ($64/2 courses).

Tests will cover all course material including demonstrations, practice problems and assigned readings up to the end of the preceding lecture unless otherwise stated. Failure to attend an exam without a valid reason (*e.g.* documented illness) will earn a grade of 0. In cases of a missed exam with a valid medical certificate, your final exam will be pro-rated to reflect the missed exam weighting. If this occurs, you are still eligible to receive a mark according to Method 2 should it be higher than the modified Method 1 mark. *Conversion chart is on last page of this outline.*

IMPORTANT NOTE: The **final exam** for this course is **cumulative** covering all material presented in lecture, assignments, etc. throughout the semester. The exam will test your comprehension and your ability to problem solve. Only under extraordinary circumstances may students request to write an equivalent invigilated Final Examination at a time and place other than that scheduled. Students must make a written request to the Dean should the need arise.

Practice Problems: The website has many practice questions sorted into Exercises (targeted sets of questions to help you learn a single topic or concept) and Practice Test Questions (primarily from previous exams). These questions will be similar to some questions found on examinations. If you want to succeed in this course, it is expected that you complete these practice questions. Additionally, 10% of your final mark will come from completing weekly online assignments.

Allergy Alert: Latex balloons are used in some demonstrations. If you have a latex allergy (or other allergy that is likely to be triggered by regular classroom or laboratory activities), please inform your instructors (lab and lecture).

Calculator Policy: You will need a scientific calculator with trigonometric functions, logarithmic functions as well as multiple brackets and/or data memories. You are not allowed to store/download text to your calculator. Any calculators found to be in violation of this policy during a test will be confiscated along with the test paper; this is cheating and will be dealt with as such. **CALCULATORS WITH WIRELESS COMMUNICATION CAPABILITIES ARE STRICTLY FORBIDDEN.**

Attendance Policy: Attending the lab is mandatory, and you will be assigned a grade of 0 for any lab missed without a valid reason. Your lab manual describes the correct protocol to make up a lab that was missed due to illness, etc. It is strongly recommended that you attend the lectures as all material discussed in lectures is examinable, and not all course material is covered in the text. Students who do not attend class regularly and punctually tend to fail this course.

Special Needs Students: Please contact the Accommodated Learning Centre to arrange for accommodations. Also, feel free to inform your instructor of your special needs in order for you to have a productive learning experience.

Cheating and/or plagiarism:

If you are caught cheating on any lab report or quiz, you will be assigned a grade of 0 for that report/quiz. If you are caught cheating on an exam, you will be assigned a grade of **F** instantly for the course. In either case, a letter describing your offense will also be placed in your student file. Under the University's Student Discipline Policy, repeated academic offenses trigger progressively more severe forms of discipline. Two letters placed in a student's file documenting cases of cheating typically result in suspension or expulsion from the University.

COPYING HOMEWORK IS CHEATING. That includes online homework. If you are caught cheating on your homework, the minimum penalty is a grade of 0 for **ALL** homework in the course. A letter describing your offense will also be placed in your student file.

STUDENTS WHO CHEAT, CHEAT THEIR FELLOW STUDENTS. If you see someone cheating during an exam, inform the instructor in the following way. Write a message on your exam paper indicating what is happening and where. Put your hand up, and the instructor will come over. Point out your note, and the instructor will take it from there. This includes situations where someone may be cheating off you. If you allow someone to look at your work, you are also at fault, and you will be disciplined. Recognize that it is often pointless to report cheating after the event.

Topics to Be Covered and Approximate Schedule[§]

Topic		Week
Welcome to Chemistry:	Administration and Overview of Course	1
Chemistry of the Atom: (Atomic Structure and Nuclear Chemistry)	Isotopes, their Applications and Mass Spectrometry Stability of Nuclei Nuclear Decay and other Nuclear Reactions First Order Kinetics Light and Spectroscopy Electrons, Quantum Numbers and Electron Configurations The Periodic Table and Periodic Trends	1 – 6
The Chemical Alphabet: (Elements of Chemistry)	Chemistry of the Elements (a Survey of the Periodic Table by Group – includes Production, Reactions, Physical and Chemical Properties, etc.) Lewis Structures, VSEPR and Polarity Intermolecular Forces, Kinetic-Molecular Theory and Gases Acids and Bases: Arrhenius, Brønsted and Lewis Aqua Complexes, Acidity and Solubility Nomenclature and Stoichiometry	6 – 11
Colour in Chemistry: (Co-ordination Chemistry)	Ligands and Co-ordination Complexes Crystal Field Splitting Colour and Spectroscopy	12

[§] We reserve the right to alter this schedule as required. You will be informed in lecture of any major deviations.

Online Assignments for Chemistry 1000

How to Register for Sapling Online Assignments

1. Go to http://saplinglearning.ca **NOTE:** Make sure to enter .ca NOT .com
2. If you already have a Sapling Learning account, log in, click "View Available Courses", then skip to step 6.*
3. Otherwise, click “Create account” located under the Login box.
4. Choose a username and password, and supply the other requested information. Click "Create my new account".
5. Check your email (and spam filter) for a message from Sapling Learning. Click on the link provided in the email.
6. Find “University of Lethbridge – CHEM 1000 – Spring20 – PATENAUDE/FINDLAY) and click the link.
7. Click the button that says "Send payment via Paypal or Credit Card" and follow the remaining instructions.**
8. Once you have registered and enrolled, you can log in at any time to complete or review your assignments.
9. If you have any problems, visit https://community.macmillan.com/community/digital-product-support/college-students-support-community or https://community.macmillan.com/docs/DOC-6915-students-still-need-help).

* If you completed Sapling for CHEM 1000 in a previous semester (i.e. were not dropped from Sapling for a refund), you can contact Sapling support (see step 9) to be unenrolled from the old course in exchange for free enrollment in this semester’s course. Old Sapling grades will NOT be reused; you must do THIS semester’s assignments.

** The University Bookstore also sells cards with Sapling access codes. Since online prices are in US$, this may be a cheaper option, depending on the exchange rate. **Note that you have to follow the instructions that the bookstore gives you on how to “cash in” the code you buy for one that you can use in Sapling.**

*** Sapling can be accessed for free on desktop computers within the library building.

How to Use Sapling

Once you have registered your account, you can get started using the system. There are TWO assignments due on Sunday, January 12th at midnight – one to introduce you to the system and one to review math that will be necessary for both lecture and lab. Subsequent assignments will also be due on Sunday nights at midnight (one assignment per week). This does not mean that you should wait to do the assignments on Sunday! If you want to leave your weekend free, finish the assignment during the week. Each assignment has been calibrated to take approximately an hour for the average student who understood the lectures and has already done the Exercises posted on the class website. If you tend to work slowly, expect that the assignments may take you longer than that. They can typically be completed more quickly if you’ve prepared/studied before starting the assignment.

1. Go to http://saplinglearning.ca
2. Enter your Username and Password then click “GO”.
3. Click on the assignment you want to work on. This will bring up the first question in the assignment. They can be done in any order; use the “map” icon to navigate the assignment if you want to work on questions out-of-order. There is no need to submit the Assignment as a whole once you’ve finished all questions.

New assignments will appear approximately once a week. Unless you are otherwise informed, there is one assignment due every Sunday night. All assignments are weighted equally, and HW1A/ HW1B combine to make one assignment. No credit is given for late assignments. No extensions will be granted for any reasons other than those which would merit an exemption from a midterm (documented illness, etc.).

Because the practice assignment encourages you to enter wrong answers in some places (to show you how the system responds to them), it will be treated as pass/fail. If you complete the practice assignment before the deadline, you are considered to have 25/25 on that assignment even if Sapling shows a points-based score.

Schedule (Subject to Change)

Assignment	Due Date
HW1A: Practice Assignment	Sun. Jan. 12
HW1B: Math Review Assignment	Sun. Jan. 12
HW2: Atoms, Isotopes and Nuclear Chemistry	Sun. Jan. 19
HW3: Light and the Atom	Sun. Jan. 26
HW4: Electrons, Atomic Orbitals and Quantum Numbers	Sun. Feb. 2
HW5: Electron Configurations and Periodic Trends	Sun. Feb. 9
End of Reading Break – No Assignment Due	Sun. Feb. 16
HW6: Metals of Groups 1 and 2	Sun. Feb. 23
HW7: More Metals and Ionic Solids	Sun. Mar. 1
HW8: Lewis Diagrams and VSEPR	Sun. Mar. 8
HW9: Polarity, Intermolecular Forces, Kinetic-Molecular Theory and Gases	Sun. Mar. 15
HW10: Nonmetals Part 1 (Hydrogen and Acids)	Sun. Mar. 22
HW11: Nonmetals Part 2 (Groups 14-17 and Boron)	Sun. Mar. 29
HW12: Co-ordination Chemistry and Colour	Sun. Apr. 5

The deadline for all assignments is midnight on the date listed.

Conversion of Overall Percentage Grade to Letter Grade in CHEM 1000 Spring 2020

The normal overall percentage grade to letter grade conversion will take place according to the following table:

A+	90.00% – 100%
A	85.00% – 89.99%
A–	80.00% – 84.99%
B+	76.67% – 79.99%
B	73.34% – 76.66%
B–	70.00% – 73.33%
C+	66.67% – 69.99%
C	63.34% – 66.66%
C–	60.00% – 63.33%
D+	55.00% – 59.99%
D	50.00% – 54.99%
F	0% – 49.99%

However, it should be noted that the instructor reserves the right to adjust the conversion table when there are multiple students who have overall percentage grades close to one another (*i.e.* when overall percentage grades for students are within 0.33% of each other) and those grades span the intended percentage to letter grade cut-off.

For example, if the following overall percentage grades were obtained:

80.97%	78.62%
80.25%	78.45%
80.13%	78.11%
79.89%	
79.75%	

the overall percentage to letter grade conversion for the bottom end of A– might be lowered from 80.00% to 79.75%.

Similarly, if the following overall percentage grades were obtained:

71.59%	70.32%
71.28%	70.19%
71.00%	70.01%
	69.73%
	69.55%
	69.42%
	69.16%
	68.91%
	68.65%

the overall percentage to letter grade conversion for the bottom end of B– might be raised to 71.00%.

The purpose of maintaining such flexibility in overall percentage grade to letter grade conversion is to provide the instructor with an ability to accommodate for “natural breaks” in overall percentage grade distributions that correspond to a meaningful difference in course performance. In the event that the actual overall percentage grade to letter grade conversion deviates from the provided table, that deviation will be limited to a maximum of +/– 3.00%.