UNIVERSITY OF CALGARY
FACULTY OF SCIENCE

Department of Chemistry
Science A 229
403 220-5381
chem.info@ucalgary.ca

COURSE OUTLINE

1. **Course:** CHEM 203, General Chemistry: Change and Equilibriumm - Fall 2020

Coordinator(s)

Name	Email	Phone	Office	Hours
Dr Julie Lefebvre	jlefebv@ucalgary.ca		EEEL 237C	TBA

Section(s)

Lecture 01: MWF 11:00 - 11:50 - Online

Instructor	Email	Phone	Office	Hours
Dr Todd Sutherland	todd.sutherland@ucalgary.ca		SB 220	TBA

Lecture 02: TR 08:00 - 09:15 - Online

Instructor	Email	Phone	Office	Hours
Dr Julie Lefebvre	jlefebv@ucalgary.ca		EEEL 237C	TBA

Tutorials begin the week of **September 14th, 2020**. *Information about synchronous Zoom meetings will be posted on D2L.*
Laboratory experiments begin the week of **September 21st, 2020**. *Information about synchronous Zoom meetings will be posted on D2L.*

Online Delivery Details:

This course is being offered online in real-time via scheduled meeting times, you are required to be online at the same time.

Lectures
Synchronous online Zoom lectures will focus on the application of the course concepts. The lectures will be complemented by recommended pre-reading, posted handouts, videos and/or lecture notes.

Note: Recordings of Zoom lectures will only be made available to students missing lectures for a legitimate reason. You are expected to attend your assigned lecture section.

Labs & Tutorials
Mandatory 75 min synchronous online meetings with your TA during your assigned timeslot. More details provided on D2L.

*For clarity: *synchronous* components are *live* whereas *asynchronous* components would be viewed *on-demand*.

Course Site:

D2L: CHEM 203 F20 - General Chemistry: Change and Equilibrium

Note: Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section 3.5.C in the Faculty of Science section of the online Calendar.

Prerequisite(s):
Chemistry 30 (or Continuing Education - Chemistry 2) and one of Mathematics 30-1 or Mathematics 2 (offered by Continuing Education).

Antirequisite(s):
Credit for Chemistry 203 and any of 209, 213 or 301 will not be allowed.

3. **Grading:**

The University policy on grading and related matters is described in F.1 and F.2 of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Component(s)	Weight %	Dates
Laboratory Activities (Experiments 1-5)	25%	
Tutorial Activities (Tutorials 1-5)*	15%	
Term test 1 **	10%	Thursday October 8 from 6 - 9 p.m.
Term test 2 **	15%	Wednesday November 4 from 6 - 9 p.m.
Final exam ***	35%	(TBD - *scheduled by the Registrar*)

For any synchronous assessment, time will be adjusted for SAS students if needed and accommodations for students will be done on a case-by-case basis.

If you need an accommodation for an assessment, please contact your course coordinator no later than 14 days prior to the date of the assessment so that alternative arrangements may be made.

* **Top Hat average score** can be used to replace the lowest non-zero tutorial score (see **section 6** for more details about Top Hat)

** **Term tests 1** and **2** will be administered as **synchronous 3 hour** individually-completed, open-book assessments on D2L.

- The listed duration of the exam *includes* a built-in buffer of extra time for unexpected technical issues (e.g. temporary loss of internet, computer shut-down etc.). The term tests are designed to take students 2 hrs to complete but students will be given a total of 3 hrs to submit their answers.
- ALL students MUST begin their online exam within the first 30 minutes of the exam window. No one will be permitted to begin the exam after this time.
- Once opened, the exam questions can be answered in any order and you will be allowed to move back and forth within the exam until you officially submit your exam.

*** The **Final exam** will consist of **two** distinct individually-completed, open-book portions submitted on D2L - a timed synchronous assessment and a non-timed asynchronous ("take-home") assessment

Final Exam Synchronous Part:

- This timed exam will be scheduled by the registrar.
- The listed duration of the exam *includes* a built-in buffer of extra time for unexpected technical issues (e.g. temporary loss of internet, computer shut-down etc.). This part of the exam is designed to take students 2 hrs to complete but students will be given a total of 3 hrs to submit their answers.
- ALL students MUST begin their online exam within the first 30 minutes of the exam window. No one will be permitted to begin the exam after this time.
- Once opened, the exam questions can be answered in any order and you will be allowed to move back and forth within the exam until you officially submit your exam.

Final Exam Asynchronous Part:

- The non-timed written component of the exam will be available for *at least* **24 hrs** and must be submitted for assessment no later than the **end** of the registrar-scheduled synchronous exam.
- This part of the exam is designed to take students 30-60 min to complete.
- The non-timed portion will be worth approximately 25-35% of the overall final assessment (or ~10% of the overall semester grade).

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95.0 %	87.0 %	82.0 %	77.0%	72.0%	66.0 %	62.0 %	58.0%	54.0%	50.0 %	45.0 %

This course has a registrar scheduled final exam.

Notes:

In order to achieve the prerequisite requirements (i.e., C-) for further Science courses, a student must meet all of the following requirements:

1. submit no less than three of the five laboratory reports/assignments,*and*
2. achieve a minimum 50% in the laboratory grading,*and*
3. achieve a minimum 50% weighted average on the examinations (Term Tests and Final).

This means that if a student scores below 50% in either the laboratory component or the examinations, then the *maximum* grade they can obtain in CHEM 203 is a D+.

4. **Missed Components Of Term Work:**

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, then the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course.

- ***Missed Term tests:*** There are no deferred term test examinations The percentage weight of a legitimately missed term test examination will be pro-rated among the remaining course examinations.
- ***Missed Synchronous Laboratory and/or Tutorial Meeting*** **:** Priority to attend a make-up synchronous meeting will be given to students with legitimate reasons for absence. Absences for other non-legitimate reasons (*e.g.* vacation, tardiness, lack of preparation) are not guaranteed any accommodation, and will be handled at the coordinator's discretion. All required material will be posted on D2L; the respective assignments can hence be completed (despite the absence) before the due date.
- ***Lab and/or tutorial assignments*** that cannot be submitted within the assigned time window due to extenuating circumstances may be extended or pro-rated towards other lab or tutorial components at the coordinator's discretion. Contact the coordinator as soon as the deadline is passed or before the deadline if possible.

5. **Scheduled Out-of-Class Activities:**

The following out of class activities are scheduled for this course.

Activity	Location	Date and Time	Duration
CHEM 203 Term Test 1	Web-Based	Thursday, October 8, 2020 at 6:00 pm	3 Hours
CHEM 203 Term Test 2	Web-Based	Wednesday, November 4, 2020 at 6:00 pm	3 Hours

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

6. **Course Materials:**

Recommended Textbook(s):

Flowers, Theopold, Langley, Robinson, et al.,*Chemistry*: Open Stax.

Important note about your textbook:

Our recommended text is an open-educational resource, freely available online through the Open Stax website (https://openstax.org/details/books/chemistry-2e). You are welcome to (i) refer to the text online, (ii) download the PDF to your own device, or (iii) purchase a print copy through the bookstore.

Recommended practice resources:

Top Hat – Active participation is an important part of your lectures. You are strongly encouraged to participate to the Top Hat activity questions; some questions will be asked during lectures while others will be set as homework to review a lecture or to prepare for an upcoming lecture. Access to Top Hat is free for University of Calgary students. Each student's lowest non-zero tutorial score can be replaced with their cumulative Top Hat score (see also, item 13). More details will be provided on the first day of lecture. Codes to enroll in the TopHat sections are 229019 for L01 and 984001 for L02.

Technological Requirements:
Specific software that will be used in this course:

- Zoom – for attending lectures/labs/tutorials and office hours.
- Office 365 suite: (Available to ALL UofC students at no additional cost)
  - OneNote – for accessing notes and assignments.
  - Excel – or equivalent software.
  - Word – or equivalent word processor.
  - PDF viewer (e.g. Acrobat Reader, Nitro Reader). Preview or in-browser reader is not sufficient.

Access to a tablet or scanner or free phone app that can save documents/photos is highly recommended.

General university requirements:
See general requirements at https://elearn.ucalgary.ca/technology-requirements-for-students/.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC ELearning online website.

7. **Examination Policy:**

All sections will write the same examinations. The questions are based on input from all instructors for the course.

All exams are open-book (resources are allowed), but are to be completed individually by the student.

In the event of technical issues (e.g. frozen screen, power outage, computer failure, etc.), the student should contact the course coordinator immediately either via email or by joining the Zoom help line (by phone or computer, link posted on D2L):

- If the student is available to re-attempt or continue the timed exam, the start time may be manually reset and the window extended to account for lost time.
- If the technical issue prevents a student from having sufficient time for completion of the exam within the available window, the weight of the missed online assessment would be redistributed in a similar fashion to any other missed online work (see also **Item 4**).

Students should also read the Calendar, Section G, on Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

   There are no mandatory or optional course supplemental fees for this course.

9. **Writing Across The Curriculum Statement:**

   For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section E.2 of the University Calendar.

10. **Human Studies Statement:**

    If you agree, your course work may be used for research purposes. Your responses will remain anonymous and confidential. Grouped data (no individual responses) may be used in academic presentations and publications. Participation in such research is voluntary and will not influence grades in this course. Students' signed consent forms will be withheld from instructors until after final grades are submitted. More information will be provided at the time student participation is requested.

    See also Section E.5 of the University Calendar.

11. **Reappraisal Of Grades:**

    A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See Section I.3 of the University Calendar.

    a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections I.1 and I.2 of the University Calendar

    b. **Final Exam:**The student shall submit the request to Enrolment Services. See Section I.3 of the University Calendar.

12. **Other Important Information For Students:**

    a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, Mental Health Services Website) and the Campus Mental Health Strategy website (Mental Health).

    b. **SU Wellness Center:** For more information, see www.ucalgary.ca/wellnesscentre or call 403-210-9355.

    c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (svsa@ucalgary.ca) or phone at 403-220-2208. The complete University of Calgary policy on sexual violence can be viewed at (https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf)

    d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K. Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples**.

    e. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at procedure-for-accommodations-for-students-with-

disabilities.pdf.

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Chemistry, Dr. Yuen-Ying Carpenter by email ahugchem@ucalgary.ca or phone 403-220-6908. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See Section E.4 of the University Calendar.

f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see Legal Services website.

g. **Student Union Information:** VP Academic, Phone: 403-220-3911 Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: 403-220-3913 Email: sciencerep@su.ucalgary.ca. Student Ombudsman, Email: ombuds@ucalgary.ca.

h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction (USRI) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or non-academic misconduct, in addition to any other remedies available at law.

13. Laboratory and Tutorial Information

In addition to the Lecture component of the course, students are scheduled for*synchronous online* tutorials and laboratory experiments in alternating weeks. In any given week, all students in the course will perform either a tutorial or a laboratory experiment. **You must attend your assigned tutorial or laboratory time slot,** *unless you have been given permission by the coordinator.*

Labs. Students repeating the course within the last two years can be exempted from the Laboratory Component of the course if a grade of 75% or higher was obtained on the lab portion. Students choosing to exempt from the lab should be aware that,

- the new online labs in Fall 2020 may be significantly different from prior labs in this course;
- the material covered in these online labs will be integrated into other course assessments; and,
- the lab grade achieved on the previous attempt will be carried forward.

Prior to applying for an exemption, students are encouraged to connect with their course instructor or coordinator to better understand the risks and benefits in their specific online course, as well as what access they will (or will not) have to lab materials or feedback as an exempt student.

Students applying for a lab exemption should contact the Undergraduate Science Center (science.advising@ucalgary.ca) **no later than Monday September 14th, 2020** to apply. Students registering in the course after this date should contact the USC as soon as possible if they wish to apply for an exemption.

Tutorials. Tutorials allow students to meet and work with other students, both collaborating in small groups on problems and providing peer feedback on individual work. A student's lowest non-zero tutorial grade can be replaced by the average score obtained when answering Top Hat questions.

14. Laboratory Safety Course

All undergraduate students taking chemistry laboratories are required to complete an introductory course (approx. 50 minutes) on laboratory safety. This course is presented in an online format. The Safety Course must be completed as part of Pre-lab 1. The material is considered to be part of the course and is therefore appropriate for inclusion into laboratory pre-labs and exams. Students who have previously completed the Chemistry Safety Course at the University of Calgary in the past five years are NOT required to repeat it.

Course Outcomes:

- Use the kinetic molecular theory for ideal gases as a model to explain relationships between temperature, kinetic energy, and reactivity
- Apply principles of chemical equilibria to predict the extent of aqueous chemical changes, including acid/base reactions, dissociation of ionic species, and redox reactions in electrochemical cells
- Identify factors that affect reaction rate, depict reaction rate with graphs and symbols, and explain rates at the molecular level
- Identify the thermodynamic enthalpy and entropy changes associated with a chemical reaction to determine which chemical reactions may or may not occur spontaneously, and describe how to alter that spontaneity.
- Use chemical equations and empirical measurements to solve quantitative problems relating to kinetic, thermodynamic and equilibrium principles
- Communicate the results of chemical changes in terms of observable macroscopic outcomes, molecular-scale models/representations, and mathematical equations. Communicate experimental results with appropriate precision of language and measurement.

Electronically Approved - Aug 31 2020 11:40

Department Approval

Electronically Approved - Aug 31 2020 13:45

Associate Dean's Approval