We recognize and acknowledge that McMaster University meets and learns on the traditional territories of the Mississauga and Haudenosaunee nations, and within the lands protected by the "Dish With One Spoon" wampum, an agreement amongst all allied Nations to peaceably share and care for the resources around the Great Lakes.

CHEM 1A03 – INTRODUCTORY CHEMISTRY

2024 Fall Term

Course Coordinators: Dr. L. Davis (she/her) | genchem@mcmaster.ca

- Scheduling, permission, and absences for labs or tests should be addressed to her.

LECTURE TIMES AND LOCATIONS

The instructor facilitates the in-person lectures which include, but are not limited to: developing problem-solving skills, presentation of some of the course material in context and through applications, interactive activities, demonstrations, and discussion.

Course Code	Section	Instructor
CHEM 1A03	C01	Sharonna Greenberg
CHEM 1A03	C02	Jim Ghoshdastidar
CHEM 1A03	C03	Yurij Mozharivskyj
CHEM 1A03	C04	Lydia Chen

Lecture days/times and locations are scheduled into your MOSAIC timetable. Recordings of lectures are found on our course Avenue page.

COURSE DESCRIPTION

A discussion of chemical fundamentals, including bonding, structure, reactivity, and energetics, with emphasis on applications to health, energy, and the environment. Laboratories highlight hands-on experimental techniques; tutorials support the development of problem-solving skills.

- Lectures, web modules (three hours), one lab (two- and one-half hours) every other week; one term

Prerequisite(s): Grade 12 Chemistry U and either registration in a Level I program in the Faculty of Science or Engineering I/Engineering I Co-Op, Arts & Science I, Health Sciences I, any program above Level I; or a grade of at least 80% in Grade 12 Chemistry U; or CHEM 1R03

Co-requisite(s): WHMIS 1A00 if not already completed, must be completed prior to the first lab.

Antirequisite(s): CHEM 1E03

- Not open to students with credit or registration in ISCI 1A24 A/B.

LEARNING OBJECTIVES

Chemistry 1A03 is an introductory chemistry course intended to:

- discuss chemical concepts, theories, and examples of fundamental chemistry
- apply chemistry to current examples within the themes of health, energy, the environment and materials
- help develop skills needed to solve chemical problems
- provide experimental investigation of chemical questions

MATERIALS & FEES

REQUIRED MATERIALS/ RESOURCES

Required Items

- **Lab Manual +Stemble Bundle:** Available at the Campus Store
- **Lab safety goggles:** Available at the Campus Store
- **Lab coat:** Available at the Campus Store
- Calculator; CASIO FX 991 MS or MS PLUS available at the Campus Store.

Recommended

- iClicker Reef Polling - details posted to Avenue before classes begin

WHMIS 1A00

All students taking chemistry courses must complete (or have previously completed) this safety course presented by Environmental & Occupational Health Support Services (EOHSS). Please register through Mosaic. The course will then appear as a module (with pass/fail test) in Avenue.

ONLINE COURSE MANAGEMENT

This course will use the following platforms to deliver course material and manage virtual meetings

- Avenue 2 Learn ('Avenue' or 'A2L'), an integrated set of tools for delivering course components over the Internet. This is our main platform for communicating to students and should be checked daily. Details on accessing this platform are provided below.
- Microsoft Teams ('MS Teams' or 'Teams'); instructor, coordinator and TA office hours will be delivered through the Teams platform. Every student is provided with an Office 365 subscription, which includes MS Teams. Links and other details about MS Teams will be communicated to students via Avenue at the start of term.
- Echo360 will be used to record in-person lectures. Students can access these recordings via links on our Avenue course page
- iClicker Cloud/Reef Polling used for in-class polling (optional)
- Stemble Learning Inc used for virtual laboratories 4 and 5 as well as post-lab assignments for Experiments 1, 2, and 3

Students should be aware that when they access the electronic components of this course, private information such as first and last names, MacIDs, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

Lab Safety and Scheduling

The dress code for the lab is strict. All students must wear clothing to ensure their skin is covered from neck-to-wrist-to-toes. This includes:

- long pants/skirt
- a lab coat
- shoes that cover the ENTIRE foot
- safety goggles
- tie up any longhair and safely secure necklaces, scarves, or other dangling clothing or accessories

This is a fully operational chemistry lab and **there is zero-tolerance for students not conforming to safe practices**. Students who are not dressed properly for the lab will be told to leave and will earn a grade of zero for the in- and post-lab assessments.

All students are scheduled to complete 5 laboratory experiments during the term. Experiments take place every-other week with your lab day and time indicated on your Mosaic timetable as L01, L03, etc... Please note that the room listed on your Mosaic timetable may not be the room in which you complete your lab. **Final room assignments will be posted on Avenue on the Friday before labs begin**.

Lab Exemptions

Any students repeating this course who would like to be exempt from the lab program must submit a request to this form by **September 12th at 11:59 pm.** The criterion used for lab exemption is two-fold: completion of this course or its antirequisite at McMaster University within the last 4 years, and completion of 4 of the 5 in-person lab experiments. Lab exemptions will not be given to students who withdrew from the course and/or did not write the final exam. There is no partial exemption for some of the labs. There is no lab exemption granted on the basis of courses taken at another university. If the exemption is granted, the lab mark obtained previously will be used to calculate your final mark. This includes the use of your final exam mark from that term being used in place of a single missed lab report (e.g if you missed exp 2 and scored 50% on the final exam, your exp 2 report mark will be 50%). Please note that lab content is still considered testable on Midterms 1 and 2 and the Final Exam. You will be responsible for ensuring you review this content.

COURSE OVERVIEW AND ASSESSMENT

This section is a guideline of topics covered in this course. Detailed Course Learning Objectives are posted to avenue. Note that laboratory experiments are also a formal part of the course content and will be included on tests and exams.

Unit 1: Introduction

- Content from this Unit serves as an introduction to the course and is not part of the learning objectives.

Unit 2: Fundamental Skills Review and Sustainable Chemistry

Unit 3: Atomic Structure and Theory

Unit 4: Periodic Trends

Unit 5: Chemical Bonding

Unit 6: Solubility and Chemical Equilibrium

Unit 7: Acid-Base Chemistry

Unit 8: Thermodynamics

Unit 9: Entropy and Free Energy;

Unit 10: Electrochemistry

EVALUATION

iCLICKER POLLING

Instructors will use the iClicker classroom response system for in-class questions. Participation in iClicker is optional, but highly recommended and can be worth up to 2% of your final grade (see page 7 for more details). Each for-credit iClicker question is graded 0.5 for the correct answer and 0.5 for participation . iClicker scores are counted as follows:

iClicker grade %	Grade out of 2
80-100	2.00
65-79	1.60
50-64	1.30
40-49	1.0
< 40	0.0

QUIZZES

Six quizzes are available during the term through Avenue. Each quiz will be available a minimum of two days before its due date (shown on page 8). All students are pre-emptively granted a one-week extension on these quizzes, with exception of the final quiz which will close on the last day of registrar-scheduled classes. You will have two attempts at each quiz where the first attempt is the full set of questions and the second is an opportunity to rework incorrect responses for additional credit. Only the top 5 of the 6 quiz marks will be counted towards your final grade.

LABORATORIES

There are 5 laboratory experiments in total; 3 are in-person and scheduled on your Mosaic timetable and 2 are virtual (due dates posted in Avenue/Stemble). Each experiment is worth 3% of your final grade and is comprised of pre- and post-lab work. Pre-lab quizzes for the in-person labs are found on Avenue to Learn. Post-lab work for the in-person labs, as well as work for the virtual labs is submitted in Stemble.

Additional notes:

- You will have two attempts at each pre-lab quiz where the first attempt is the full set of questions and the second is an opportunity to rework incorrect responses for additional credit.
- You will prepare a flowchart of the experimental procedure and have it reviewed by your TA at the start of lab. It is not for marks, but failure to complete a flowchart may result in your being turned away from the lab at the discretion of the TA or the laboratory coordinator.
- You will have 24 hours from the end of your lab period to complete and submit the post-lab assignment on Stemble.

All students must watch the Safety Video on Avenue and pass the safety quiz associated with the video to gain entry to the labs. Students who complete the quiz by the deadline with a score of 100% will receive a 0.5% bonus added to the final course mark. Students who have a lab exemption may also complete the safety quiz and earn this bonus (note: it is not carried over from the previous time you took the course). This safety quiz is different from, and in addition to, the one completed for WHMIS 1A00.

TESTS

Two 90-minute, in-person term tests are scheduled during the semester (see page 8 for dates and times). Test rooms will be announced on Avenue. Pre-existing conflicts should be discussed with the course coordinator (genchem@mcmaster.ca) a minimum of 1 week in advance of the test date.

EXAMINATIONS

In-Person Final Examination (2.5 hours): is scheduled for December by the Registrar's Office and will test all course content from the Fall term. This examination **must be written** to pass the course. Pre-existing conflicts should be discussed with the Registrar's office once the exam timetable is released (usually by November).

MARKING SCHEME

Three weighting options are shown below. Each student will automatically receive the highest grade of the three calculated grades.

Course Component	Option 1	Option 2	Option 3	Notes
iClicker Polling	2%	2%	2%	Optional. See Note 1
Avenue Quizzes	15%	15%	15%	Lowest quiz mark dropped
Labs	15%	15%	15%	Mandatory. See Note 2
Term Test 1	20%	0%	20%	See Note 3
Term Test 2	20%	20%	0%	Cumulative. See Note 3
Final Exam	28%	48%	48%	Cumulative. Mandatory

- Note 1: Students who do not participate in, or perform poorly on iClicker polls relative to their final exam score, will have this weight moved to the final exam, automatically
- Note 2: Students must complete and submit a post-lab assignment for a minimum of 4 laboratory experiments to pass the course. Post-lab assignments that are found to be in violation of McMaster's academic integrity policy are not counted as a submission.
- Note 3: To obtain credit for CHEM 1A03/1E03, students must complete a minimum of 75% of the weight of the course work as shown in Option 1. This 75% must include both the final exam and laboratory components. Students who miss both Test 1 and Test 2 will not be able to meet this 75% threshold.

COURSE SCHEDULE

	Monday	Tuesday	Wednesday	Thursday	Friday
	September				
No labs	2	3 (Classes Begin)	4	5	6
No labs	9	10	11 (Add/Drop Ends)	12 Quiz 1 Due	13
Group A Exp 1	16	17	18	19	20
Group B Exp 1	23	24	25	26 Quiz 2 Due	27 Test 1: 7:00 pm
	October				
Group C Exp 1	30 No labs/classes	1	2	3	4
Group C Exp 1 M	7	8	9	10 Quiz 3 Due	11
No labs or classes	14 Thanksgiving	15 Mid-term recess	16 Mid-term recess	17 Mid-term recess	18 Mid-term recess
Group A Exp 2	21	22	23	24	25
Group B Exp 2	28	29	30	31 Quiz 4 Due	1
November					
Group C Exp 2	4 Test 2: 7:00 pm	5	6	7	8
Group A Exp 3	11	12	13	14 Quiz 5 Due	15
Group B Exp 3	18	19	20	21 Exp 4 (virtual) due	22
Group C Exp 3	25	26	27	28 Quiz 6 Due	29
	December				
Makeup Labs	2	3	4	5 Last day of classes Exp 5 (virtual) due	6 (Exams Begin)
	9	10	11	12	13
	16	17	18	19 (Exams End)	20

- Please see your Mosaic timetable for your scheduled lab days and times throughout the term

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

McMaster Student Absence Form (MSAF): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work".

COURSE-SPECIFIC MSAF INFORMATION

Our course is designed so that you can miss the occasional piece of work and not be penalized. MSAFs are not required to report these absences.

Component	MSAF Required?	Relief for missed work
iCkicker Polls	No	This is an optional component. Students who score higher on their final exam relative to their iClicker score will automatically have their iClicker score dropped from their final grade calculation.
Quizzes	No	Due dates are posted on page 8. Automatic extensions are granted for up to one week after the due date or the last day of registrar-scheduled classes (whichever comes first). There are no makeup quizzes or further extensions. Instead, we automatically drop the lowest one of the six quiz marks.
Labs	No	Students must complete a minimum of 4 of the 5 post-lab reports to pass this course. **See page 10 for further details on makeup/missed labs.**
Term Test 1	No	There are no makeup tests. Students missing Test 1 will have its weight moved to the final exam (see Option 2 in marking scheme above). Please note that you need to write at least one of the two midterm tests to pass CHEM 1A03/1E03/1AA3
Term Test 2	No	There are no makeup tests. Students missing Test 2 will have its weight moved to the final exam (see Option 3 in marking scheme above). Please note that you need to write at least one of the two midterm tests to pass CHEM 1A03/1E03/1AA3
Final Exam	MSAF not available	The MSAF on-line, self-reporting tool cannot be used to apply for any missed final examination or its equivalent. See *Petitions for Special Consideration* in the Undergraduate Calendar.

MISSED/MAKEUP LAB DETAILS

Pre-Lab Work

Pre-lab work must be submitted before the start of your scheduled lab period. Students submitting their work late may be turned away from the lab at the discretion of the TA or lab coordinator. If you are unable to complete your pre-lab work because you are unwell/unavailable and will not be attending your lab, then submit your pre-lab work as soon as you are well enough to do so. The final deadline to submit all pre-lab work is **the last day of registrar-scheduled classes at 11:59 pm**. Work not received by this deadline will be given a grade of zero. If you plan to attend a makeup lab, but do not submit your pre-lab work by this deadline, then you will forfeit your spot in the makeup lab.

Makeup Labs

We will schedule a series of makeup labs for the week of December 2nd, 2024. Below we outline details on eligibility to register based on the number of labs missed throughout the term. Details on how to register will be posted to Avenue.

Number of missed labs	Instructions/Eligibility
1	You are not eligible to register for a makeup lab. Submit your pre-lab work according to the instructions posted above. The weight of the lab report will be moved to the final exam
2	Submit your pre-lab work according to the instructions posted above. Register for and attend a makeup lab for ONE of the missed labs. Submit this report as per the instructions in the lab manual. For the SECOND missed lab, the weight of the lab report will be moved to the final exam.
3	Submit your pre-lab work according to the instructions posted above. Register for and attend/complete a makeup lab for TWO of the missed labs. Submit these reports as per the instructions in the lab manual. For the THIRD missed lab, the weight of the lab report will be moved to the final exam.
4	You are at risk of failing CHEM 1A03. Book an appointment with an academic advisor in your faculty office.
5	You are at risk of failing CHEM 1A03. Book an appointment with an academic advisor in your faculty office.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's *Academic Accommodation of Students with Disabilities* policy.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office ***normally within 10 working days*** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

ONLINE PROCTORING

This course may use proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins. If you have questions or concerns about the use of the proctoring software, please contact the Instructor or review the following documents and FAQs.

Respondus Supports and FAQs

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the *Academic Integrity Policy*, located at https://secretariat.mcmaster.ca/university-policies-procedures- guidelines/

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY / PLAGIARISM DETECTION

This course may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all our living, learning and working communities. These expectations are described in

the *Code of Student Rights & Responsibilities* (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

STUDENT RESOURCES

Updating Preferred Forms of Address

We endeavor to address students by their preferred name and pronouns. *To change your preferred name*, log into Mosaic and go to *Personal Information* → *Student Center* → *Names*. Your primary name is your legal name, which will be displayed on all official university documents (link). Your *Preferred Name* is the name that instructors, TAs, and other members of our team will use. It will be displayed on Avenue2Learn but will not appear on official university documentation. *To change your preferred pronouns* on Avenue, click on your name in the top right-hand corner, select *Account Settings* → *Pronouns*, then choose your preferred pronouns and whether others can see them. This will display your preferred pronouns in the class list on Avenue.

Other Student Resources

There are many opportunities for students seeking any number of help opportunities while enrolled at McMaster. Please make yourself familiar with the services offered on campus.

Student Success Center which is on campus to engage students and alumni in diverse learning opportunities to support their academic, personal and professional growth: http://studentsuccess.mcmaster.ca/

Student Wellness providing counseling and medical services including wellness education: http://wellness.mcmaster.ca/

Academic advising - https://registrar.mcmaster.ca/resources/advising/

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, including lectures by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

Additional Copyright Information

In this course students will have access to material that is subject to copyright laws. This includes (but is not limited to) textbooks and all resources developed by the Instructor such as lab manuals, demonstration videos, quizzes, assignments, tests, class notes and class slides.

Students are not allowed to share or redistribute this material in any printed or electronic form without the explicit written consent of the copyright holder. This includes posting any course material on Internet bulletin boards, course repositories, social networks, etc.

RESEARCH ETHICS - NA

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.