CHEM 112 Syllabus 2022-2023

Welcome to CHEM 112! To begin, we acknowledge that Queen's is situated on traditional Anishinaabe and Haudenosaunee territory. We are grateful to be able to live, learn, and play on these lands.

We are excited to have you join us this year. This course will explore the foundations of chemistry through lectures, laboratories, and problem-solving tutorials. We hope that you will enjoy your year with us and that the experience can kindle your enthusiasm for chemistry.

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General Information

Course Details

Course: CHEM112 - General Chemistry

Semester: Fall/Winter 2022-23

Sessional dates: TBD

Credits: 6

Modality: In-person on campus

Pre-requisites: 4U Chemistry or equivalent

Lecture Schedule and Locations:

There are four sections of CHEM 112 that meet for 50 minutes on Monday, Tuesdays, and Thursdays. CHEM112 is held in different classrooms on campus. Accessibility information and room descriptions can be found for each at the links below.

Day	Section 001 (DUNMAC)	Section 002 (BIOSCI 1101)	Section 003 (DUNNING)	Section 004 (BIOSCI 1102)
Monday	08:30 – 09:30	11:30 – 12:30	14:30 – 15:30	17:30 – 18:30
Tuesday	10:30 – 11:30	13:30 – 14:30	16:30 – 17:30	17:30 – 18:30
Thursday	09:30 – 10:30	12:30 – 13:30	15:30 – 16:30	17:30 – 18:30

Duncan McArthur Auditorium: https://www.queensu.ca/classrooms/classrooms/duncan-mcarthur-hall

Biosciences 1101: https://www.queensu.ca/classrooms/classrooms/biosciences-complex#BIO-1101

Dunning Hall: https://www.queensu.ca/classrooms/classrooms/dunning-hall#Dunning-AUD

Biosciences 1102: https://www.queensu.ca/classrooms/classrooms/biosciences-complex#BIO-1102

Laboratory and Tutorial Schedules

Labs and tutorials are conducted consecutively during a 3-hour time slot. Some sections will start with 90 minutes of lab and then 90 minutes of tutorial, while others will do the opposite. Your lab section number and tutorial section number are the same. Schedules for 4 sections are shown in the sample table below. A complete table with all sections is posted on onQ.

Here is an Example Schedule:

Monday Afternoon, 2:30-5:30, Sections 005, 006, 007, 008				
TIME	**Section 005**	**Section 006**	**Section 007**	**Section 008**
2:30	Go to lab (CHE 206A)	Go to tutorial (CHE 213)	Go to lab (CHE 206A)	Go to tutorial (CHE 211)
4:00	Go to tutorial (CHE 213)	Go to lab (CHE 206A)	Go to tutorial (CHE 211)	Go to lab (CHE 206A)

Course communications

All course inquiries and questions should be posted in an onQ discussion forum or sent by e-mail to: chem112@queensu.ca. See further information about contacting the teaching team below. You may not receive a response if you send a course question to the wrong place.

Teaching Team

Course/Lab Coordinator

Instructor Name: **Michael Mombourquette**
E-mail: chem112@queensu.ca

Phone: 613-533-2612

Please send all requests for academic consideration to the course coordinator.

Instructors

Instructor e-mail addresses for communications of a personal nature only.

Section	**Fall Term**	**Winter Term**
Section 001	**Stephen Brown** **Office: CHE 404** stephen.brown@chem.queensu.ca	**Amanda Bongers** **Office: CHE 517** amanda.bongers@queensu.ca
Section 002	**Farnaz Heidar-Zadeh** **Office: CHE 304** farnaz.heidarzadeh@queensu.ca	**Philip Jessop** **Office: CHE 412** jessop@queensu.ca
Section 003	**Guojun Liu** **Office: CHE 411** guojun.liu@chem.queensu.ca	**Kevin Stamplecoskie** **Office: CHE 505** kevin.stamplecoskie@queensu.ca
Section 004	**Hriday Bhattacharjee** **Office: CHE 414** h.bhattacharjee@queensu.ca	**Hriday Bhattacharjee** **Office: CHE 414** h.bhattacharjee@queensu.ca

Teaching Assistants (TAs)

Lab TAs are responsible for leading the CHEM112 laboratory experiments, for grading lab reports, and for your safety in the lab. They will be wearing distinctive red or blue lab coats. If you have questions about the lab content or procedures, please consult your lab TA.

Tutorial TAs are responsible for leading CHEM112 tutorials and for grading tutorial assignments. If you have questions about the tutorial content or assignments, please consult your tutorial TA. TA contact information will be available in OnQ.

Questions about the Course and Contacting the Teaching Team

Questions about Course Content: Throughout this course, you may come upon some general questions about the course and any assignments. There are three options for asking questions:

1) You are invited to post your question in the course Discussion Forum, which will benefit other students. Feel free to help answer your peers' questions on this forum. The teaching team will monitor this discussion forum and answer questions. Most questions are answered in 24 hours.
2) Contact your tutorial TA at one of the emails listed in OnQ, or better yet, ask them during tutorial.

3) Ask your question in class while you have the instructor's attention!

Questions about grades or other personal issues: Any other questions that you would prefer to share privately, please contact (chem112@queensu.ca)

Course Announcements

Throughout the course, we will routinely post course news in the Announcements section of the course homepage. Please configure your OnQ settings to send an alert to your cell phone or your favourite e-mail address. We encourage you to actively check the course OnQ main page for course announcements throughout the semester for reminders and additional course information or learning opportunities.

Course Learning Outcomes

By the end of this course, students should be able to:

- Know and understand basic microscopic models of matter so they can build up macroscopic concepts of materials.
- Understand and use thermodynamics principles to calculate such things as energy change, entropy, enthalpy, work, Gibbs Energy, and spontaneity.
- Recognize and describe phase changes in pure and solution-based systems using both fundamental principles and phase diagrams.
- Understand and use concepts in organic chemistry, including nomenclature, functional groups, reactivities.
- Understand and use concepts of equilibrium systems including acid/base, solubility, oxidation/reduction and precipitation systems.
- Determine and describe the kinetics of a system using different experimental procedures and relate the results to reaction mechanisms

Course Materials

- Textbook: Petrucci Herring Madura Bissonette, General Chemistry Principles and Modern Applications 11e, Pearson Toronto, Canada, 2016. The new textbook is only available as an e-text, but used hardcopies may be available (make sure it's the 11th edition).
- Homework: Mastering Chemistry website, used for homework assignments.

The e-text and Mastering Chemistry access can be purchased together (as an access code) from the Campusbookstore.com. For those with a hardcopy text, access to only Mastering Chemistry may be purchased separately.

Technology Requirements

- **Calculator Policy.** As noted in Academic Regulation 9.2, "Calculators acceptable for use during quizzes, tests and examinations are intended to support the basic calculating functions required by most Arts and Science courses. For this purpose, the use of the **Casio 991 series calculator** is

permitted and is the only approved calculator for Arts and Science students." Purchase this calculator before the December exam.

- **Web Browsers.** onQ works best with Chrome or Firefox. Mac users have reported problems using Safari and Queen's IT claims that Microsoft Edge may also cause problems.
- **Internet Speed.** *A wireless or wired Internet connection is required. A minimum download speed of 10 Mbps and up to 20 Mbps for multimedia is recommended. Click here for an Internet speed test.*

Course Timeline

A detailed course timeline can be found in onQ. Please consult the university's website of important dates for information on session dates, statuary holidays, fall or winter breaks, etc.

Timing of Fall and Winter Examinations

The exam dates for each Term are listed on the Faculty of Arts and Science webpage under Important Dates. Student exam schedules for the Fall Term are posted via SOLUS immediately prior to the Thanksgiving holiday; they are posted on the Friday before Reading Week for the Winter Term and for the summer term, they are individually noted on the Arts and Science Online syllabi. Deferred exams are usually held in January (Fall) and May (Winter).

You MUST be in attendance in person to write all exams.

Students should delay finalizing any travel plans until after the examination schedule has been posted. Exams will not be moved or deferred to accommodate employment, travel/holiday plans or flight reservations.

Assessments

We will have 4 types of assessments in this course:

- **Exams**: There will be two in-person exams for this course. The mid-year exam will occur during the December exam period, and the final exam will occur during the April exam period. These exams will be multiple choice and will focus on the material from the most recent term.
- **Labs**: The labs portion of your grade comprises pre-lab quizzes and lab reports. Your lab report will be due the week following your experiment.
- **Tutorials**: Tutorials are weekly assignments to be completed during your tutorial time slot. These assignments are due at the end of the tutorial.
- **Weekly Homework (Mastering)**: The weekly homework assignments are completed using the Pearson tool Mastering Chemistry. You must register for access to this site. These assignments will give you the opportunity to practice using the materials you have learned in class. The assignments are due every Monday.

Late Policy

- **Exams** must be done in person. Without an approved Letter of Accommodation or Letter of Consideration, a grade of zero will result from missing one of these.
- **Lab reports** will be given a 24 hour grace period and after that will loose 1%/hour in value to a minimum grade of 5% (1/20).

- **Tutorial reports** are due at the end of the tutorial, to be handed in to your TA. After that, you will loose 1%/hour in value to a minimum grade of 5% (1/20).
- **Mastering homework** will be marked zero for any portion of the assignment that is not submitted before the deadline.

Grading Scheme

Exams	60%
Midyear exam in December (30%)	
Final exam in April (30%)	
Labs	20%
Tutorials	15%
Weekly homework assignments	5%
Total:	100%

Queen's Official Grade Conversion Scale	
Grade	**Numerical Course Average (Range)**
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

Grading Method

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale. To pass the course, you will **need to achieve a pass in the labs (minimum of 10%) and a pass in the lecture portion (minimum of 40%)** of the course in addition to an overall passing mark. Note that some consideration for missed assignments is given under Universal Design for Learning (UDL – See "Academic Consideration" section below).

Attendance in Labs and Tutorials is mandatory.

- **Missing a lab** will result in a zero for that lab. The overall lab mark will include UDL considerations (lowest mark each term is dropped, see "Academic Consideration" section below). Note that if you miss a lab during the term, you can complete it during the lab make-up week at the end of the term.
- **Missing a tutorial** will result in a zero for that tutorial. The overall tutorial mark will also include UDL considerations (lowest mark each term is dropped, see "Academic Consideration" section below).

Suggested Time Commitment

Generally, the more time you put into something the better you will master it but there are limits in all our lives as to how far that goes. We expect that you will put in 8-10 hours a week of work on the course, on average (some weeks might be more, some less), divided between:

- attending lectures, labs and tutorials
- reviewing your lecture notes and making your own version of the notes,
- reading the textbook,

- writing your lab report,
- preparing for tutorial work,
- doing the Mastering Chemistry practice problems and homework assignments.

Studies are clear that students who cram for major exams rather than working through their material throughout the course do not remember the material after the course. As this is a prep course for the rest of your university careers, even if not in Chemistry, short-term cramming will not set you up for success in future courses.

Start now! Plan your time carefully, being sure to schedule time for all the aspects of the course in your calendar. You are encouraged to manage your time and use a weekly study schedule (visit SASS) that distributes the 8-10 hours per week and avoids 'cramming'. This way you will be more likely to complete the course successfully and remember what you learned longer. Be flexible. As the course progresses, you may find you need less time than you thought on some things but more on others.

You may find that you are running up against unplanned-for time crunches or an unexpected illness that makes it difficult to complete your current item in the course. Be aware that the course is designed with Universal Design for Learning (UDL) in mind.

Equity, Diversity, and Inclusivity Statement

Equity in an educational institution is achieved when all members of our society have fair and equal opportunity to participate in and enjoy the benefits of an education, including the opportunity to experience success and human dignity while developing the skills, knowledge and attitudes necessary to contribute as leaders and citizens in society.

Academic Accommodations

Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016. If you are a student with a disability and think you may need academic accommodations, you are strongly encouraged to contact the **Queen's Student Accessibility Services (QSAS)** and register as early as possible. For more information, including important deadlines, please visit the QSAS website.

Academic Consideration for Students in Extenuating Circumstances

Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances. For more information, please see the Senate Policy on Academic Consideration for Students in Extenuating Circumstances.

This course uses Universal Design for Learning (UDL). Each term, the lowest grade in each of the following categories (labs, tutorials, Mastering Chemistry assignments) will be automatically dropped (It's programmed into onQ). This is to allow you to unexpectedly miss one of these items with no penalty and without the need to apply for academic consideration.

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. Arts and Science undergraduate students can find the Faculty of Arts and Science protocol and the portal where a request can be submitted. Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

If you need to request academic consideration for this course, you will be required to provide the name and email address of the instructor/coordinator. Please use the following information:

NAME: Michael Mombourquette

EMAIL ADDRESS: chem112@queensu.ca

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their Professors/Course Coordinators as soon as possible once Consideration has been granted. Any delay in contact may limit the Consideration options available.

Please note that requesting an academic consideration form from the FAS portal does not automatically grant you the consideration you may need. You still need to communicate directly with the Course coordinator with whom you can discuss what needs to be done.

Your Professor/Course Coordinator requests email/onQ/phone communication to 613-533-2612 or chem112@queensu.ca within 2 days of receiving verification of your Consideration request.

For more information on the Academic Consideration process, what is and is not an extenuating circumstance, and to submit an Academic Consideration request, please visit the website.

Academic Integrity

Queen's students, faculty, administrators and staff all have responsibilities for upholding the fundamental values of academic integrity; honesty, trust, fairness, respect, responsibility and courage. These values are central to the building, nurturing, and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and their behaviour conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulation 1), on the Arts and Science website, and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery, and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

For Lab Reports: Although you are working with a partner, your lab report must be your own. Don't copy words and phrases directly from your partner's report. Both reports will get a zero if copying has happened. You can and should discuss things between you and your partner, but then go away and write your own report without knowing exactly what your partner wrote.

Copyright of Course Materials

Course materials created by the course instructors, including all slides, presentations, handouts, tests, exams, and other similar course materials, are the instructor's intellectual property. It is a departure from academic integrity to distribute, publicly post, sell, or otherwise disseminate an instructor's course materials, including note sharing sites, without the instructor's express written consent. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights.

Netiquette / Discussion Guidelines

University is a place to share, question, and challenge ideas. Each student brings a different set of lived experiences. You can help to create a safe, respectful place for learners by promoting the following guidelines:

- Make a personal commitment to learn about, understand, and support your peers.
- Assume the best of others and expect the best of them.
- Acknowledge the impact of oppression on other people's lives and make sure your writing is respectful and inclusive.
- Recognize and value the experiences, abilities, and knowledge each person brings.
- Pay close attention to what your peers write before you respond. Think through and re-read your writings before you post or send them to others.
- It's alright to disagree with ideas, but do not make personal attacks.
- Be open to being challenged or confronted on your ideas and challenge others with the intent of facilitating growth. Do not demean or embarrass others.
- Encourage others to develop and share their ideas.

Students Studying or Travelling Abroad

CHEM 112 has mandatory in-person labs. You cannot miss these and expect to pass the course. We strongly recommend that you confirm Internet availability in your host country before departure if you plan to travel. In the past, students in other countries have been blocked from accessing certain websites relevant to their courses and onQ. It is the responsibility of all students to book travel around course work, as we cannot change the format or timing on assessments or assignments because of travel plans.

Privacy Statement

Mastering Chemistry

This course makes use of Mastering Chemistry for Homework assignments. Be aware that by logging into the site, you will be leaving onQ, and accessing Pearson Canada's Website. Your independent use

of that site, beyond what is required for the course (for example, purchasing the company's products), is subject to Pearson Canada's terms of use and privacy policy.

Turnitin

This course uses Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely to detect plagiarism.

Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. Turnitin compares submitted files against its extensive database of content and produces a similarity report and a similarity score for each assignment. A similarity score is the percentage of a document that is similar to content held within the database. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to select the authenticity of work as a part of a larger process.

Please read Turnitin's Privacy Pledge, Privacy Policy, and Terms of Service, which govern users' relationship with Turnitin. Also, please note that Turnitin uses cookies and other tracking technologies; however, in its service contract with Queen's, Turnitin has agreed that neither Turnitin nor its third-party partners will use data collected through cookies or other tracking technologies for marketing or advertising purposes. For further information about how you can exercise control over cookies, see Turnitin's Privacy Policy

Turnitin may provide other services that are not connected to the purpose for which Queen's University has engaged Turnitin. Your independent use of Turnitin's other services is subject solely to Turnitin's Terms of Service and Privacy Policy, and Queen's University has no liability for any independent interaction you choose to have with Turnitin.

Recording Synchronous Sessions

In the event of that course delivery (lectures, office hours, tutorials) are hosted online, these sessions may be recorded and posted for later review, including by students who could not attend. The use of cameras during these sessions is optional, and if used, artificial or blurred backgrounds may be employed. Students may pose questions or participate in discussion by unmuting and speaking through a microphone, but this is optional. Participating through the chat function is also possible. Students who turn on their cameras or unmute and speak must be aware that they will be included in the recording that will be posted to onQ, with secure access only to those registered in the course. Reposting or retransmitting any portion of the recorded sessions, including screen shots, is not permitted.