

SYLLABUS
General Chemistry
CHEM 112
Fall/Winter 2019/20

Course Coordinator: Michael Mombourquette, mjm5@queensu.ca, CHERNF209, Phone 613-533-2612
Office Hours: tba. Other hours I may be available too.

Course Instructors:

Fall

Section 1: Gang Wu, Gang.Wu@chem.queensu.ca, CHERNF 408, Phone 613-533-2644

Section 2: Peng Wang, Wang.peng@queensu.ca, CHERNF 303, Phone 613-533-3250

Section 3: Stephen Brown, Stephen.brown@chem.queensu.ca, CHERNF 404, Phone 613-533-2655

Winter:

Section 1: Kevin Stamplecoskie, Kevin.stamplecoskie@chem.queensu.ca, CHERNF 505, Phone 613-533-2649

Section 2: Amanda Bongers, Amanda.bongers@queensu.ca, CHERNF 507, Phone 533-2631

Section 3: Michael Mombourquette, mjm5@queensu.ca, CHERNF 209, Phone 613-533-2612

TA Information:

Lab Teaching Assistants

The lab TAs are mainly chemistry graduate students (M.Sc. or Ph.D candidates). They are responsible for leading the CHEM 112 labs, for grading lab reports, and for your safety in the lab. You can recognize the TAs in the lab, as they're the ones wearing red or blue lab coats. If you have questions about the lab content or procedures, it is usually best to consult your lab TA in the first instance. The list of TAs for Each Semester can be found below.

Students in odd numbered sections go to lab first in CHERNF206A and the even numbered groups go to tutorial in CHERNF211 or CHERNF213. Among the two even's, the larger number goes to 211 and the smaller goes to 213.

For example, the Monday afternoon lab/tutorials (sections are 005, 006, 007, 008) are from 2:30 - 5:30. Students in these sections don't all go to lab at the same time. Odd sections (005, 007) go to lab at 2:30 while section 006 goes to tutorial in room CHERNF213 and 008 goes to tutorial in CHERNF211. Then at 4:00 (half-way through the 3h period) students swap rooms. Sections 006 and 008 go to lab and sections 005 and 007 go to tutorial in CHERNF213 and CHERNF211, respectively. This same pattern holds for each of the time slots.

The Lab TAs are listed here:

Fall					
Labs					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
8 am :30		25,26,27,28 (86) - Michael Ylagan	29,30,31,32 (88) - Andre Castillo	33,34,35,36 (90) - Patricia Maung	37,38,39,40 (92) - Yam Gotame
9 am :30		Derek Esau	Devni Elamaldeniya	Emil Khusainov	Haopeng Gao
10 am :30		Yu Pei	Phllip Hillen	Emmanuella Asiedu	Abiola Adeyeye
11 am :30		Chengqian Wu	Jiahui Shen	Parimah Aminfar	Ryan Tang
11 am :30		Chanaka Nawarantna	Sangeeth Dan Kallullathil	Ziruo Lai	
12 PM :30					
1 PM :30	Weekly Meeting				
2 PM :30					
3 PM :30	5,6,7,8 (85) Emily Groper	9,10,11,12 (87) Michael Ylagan	13,14,15,16 (89) Andre Castillo	17,18,19,20 (91) Patricia Maung	21,22,23,24 (93) Yam Gotame
3 PM :30	Ben Tucker	Derek Esau	Devni Elamaldeniya	Emil Khusainov	Haopeng Gao
4 PM :30	Yagya Paudel	Yu Pei	Phllip Hillen	Emmanuella Asiedu	Angus Sullivan
4 PM :30	Darsh Thakkar	Marie-Soleil Lebrun	Jiahui Shen	Oluwatobi Oyebanji	Abiola Adeyeye
5 PM :30	Randa Althobiti	Chanaka Nawarantna	Oluwatobi Oyebanji	Ziruo Lai	Ryan Tang

Tutorial TAs are listed here

Fall					
Tutorials					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
8 am :30		25,26,86 (213)	29,30,88 (213)	33,34,90 (213)	37,38,92 (213)
9 am :30		Alexander Harper	Calvin Palmer	Kendall Hupp	Lucas Kapeniak
10 am :30		27,28 (211)	31,32 (211)	35,36 (211)	39,40 (211)
11 am :30		Hailey Poole	Sho Fujita	Margaret MacConnachie	James Palmer
12 PM :30					
1 PM :30					
2 PM :30					
3 PM :30	5,6,85 (213) Carolyn Kimball	9,10,87 (213) Alexander Harper	13,14,89 (213) Calvin Palmer	17,18,91 (213) Kendall Hupp	21,22,93 (213) Lucas Kapeniak
4 PM :30	7,8 (211) Eduardo de Barros Ferreira	11,12 (211) Hailey Poole	15,16 (211) Rahul Kumar	19,20 (211) Margaret MacConnachie	23,24 (211) Graham Beaton
5 PM :30					

Intended Student 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 Outline*

1. Introduction
2. Gases
3. Atoms
4. Molecules
5. Thermochemistry

6. Phase transitions
7. Organic Reactions
8. Equilibrium
9. Acid-Base Equilibria
10. Solubility and Complexation
11. Thermodynamics
12. Electrochemistry
13. Kinetics

* More details on the topics listed here are available from Course Schedule link on this site.

Textbooks/Readings

Petrucci Herring Madura Bissonette, General Chemistry Principles and Modern Applications 11e, Pearson Toronto, Canada, 2016

Grading Scheme

Exams:	60%.
Midyear exam in December (30%)	
Final exam in April (30%)	
Labs:	15%
Tutorials	10%
Quizzes (every second tutorial)	10%
Weekly homework assignments	5%
Total:	100%

Grading Method

All components of this course will receive numerical percentage marks. Note that to pass the course, you will need to achieve a pass in the labs and a pass in the lecture portion of the course in addition to an overall pass in the course itself. 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:

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

Late Policy

- Weekly homework assignments that are past due will receive a grade of zero.

- Lab reports that are past due will receive a grade that drops by 10% per day late.
- Tutorial assignments cannot be late because they are handed in during the tutorial. So either you are present and you have handed in an assignment or you are not there and you receive zero.
- Quizzes are done in tutorial. You are either present or not for those.
- Exams are administered by the exams office. Please make sure you have contacted them for any accommodations you may need. Delaying contacting them may result in your not receiving any consideration.

1. Location and Timing of Final 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; for the Winter Term they are posted on the Friday before Reading Week, and for the Summer Term they are individually noted on the Arts and Science Online syllabi. **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.** Also, as indicated in Academic Regulation 8.3, students must write all final examination in all on-campus courses on the Kingston campus.

2. Statement on Academic Integrity

Academic Integrity is constituted by the six core fundamental values of honesty, trust, fairness, respect, responsibility and courage (see www.academicintegrity.org). 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 <http://www.queensu.ca/secretariat/policies/senate/report-principles-and-priorities>).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulation 1 <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations/regulation-1>), on the Arts and Science website (see <http://www.queensu.ca/artsci/students-at-queens/academic-integrity>), and from the instructors 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.

3. 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."

4. Turnitin Statement

This course makes use of Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their Lab reports 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 for the purpose of detecting 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 determine the authenticity of work as a part of a larger process.

Please read [Turnitin's Privacy Pledge, Privacy Policy, and Terms of Service](#), which governs 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.

5. Copyright of Course Materials

"This material is designed for use as part of CHEM 112 at Queen's University and is the property of the instructors unless otherwise stated. Third party copyrighted materials (such as book chapters and articles) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.

Copying this material for distribution (e.g. uploading material to a commercial third-party website) can lead to a violation of Copyright law. Find out more about copyright here:

<http://library.queensu.ca/copyright.>"

6. Privacy Statement for Instructors Who Use External Software in Their Course

This course makes use of Turnitin and Pearson for Lab assignments and homework, respectively. Be aware that by logging into the site, you will be leaving onQ, and accessing Turnitin.com or Pearsoncanada.ca websites. Your independent use of that site, *beyond what is required for the course (for example, purchasing the company's products)*, is subject to Turnitin's and Pearson's terms of use and privacy policy. You are encouraged to review these documents, using the link(s) below, before using the site.

- Pearson & Peer Scholar- <http://www.pearsoncanada.ca/pearson-canada-at-a-glance/legal/privacy-statement>
- Turnitin - http://turnitin.com/en_us/about-us/privacy

7. Accommodations for Disabilities

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 of their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016 (see

<https://www.queensu.ca/secretariat/sites/webpublish.queensu.ca.uslclwww/files/files/policies/senate-andtrustees/ACADACCOMMPOLICY2016.pdf>). 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 at: <http://www.queensu.ca/studentwellness/accessibility-services/>

8. Academic Consideration for Students with Extenuating Circumstances

Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances that are beyond their control and are interfering with their ability to complete academic requirements related to a course for a short period of time, not to exceed three months. Students receiving academic consideration must meet all essential requirements of a course. The Senate Policy on Academic Consideration for Students in Extenuating Circumstances was approved at Senate in April, 2017 (see <http://www.queensu.ca/secretariat/sites/webpublish.queensu.ca.uslclwww/files/files/policies/senate-andtrustees/Academic%20Considerations%20for%20Extenuating%20Circumstances%20Policy%20Final.pdf>) 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 at: <http://www.queensu.ca/artsci/accommodations>. 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:

Instructor/Coordinator Name: Michael Mombourquette
Instructor/Coordinator email address: mjm5@queensu.ca