UNSW Course Outline

CHEM1001 Introductory Chemistry - 2024

Published on the 13 Feb 2024

General Course Information

Course Code : CHEM1001
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : School of Chemistry
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Introductory Chemistry is designed for students entering university with little or no previous background in Chemistry. The course will provide basic descriptions of atomic and molecular structure, nomenclature, the Periodic Table, stoichiometry, equilibrium, kinetics, common

reaction types, acids and bases, and the fundamentals of organic chemistry. Note: Enrolment in CHEM1001 is not recommended for students who have already achieved an adequate performance in HSC Chemistry (or equivalent). CHEM1001 does not qualify as a prerequisite for any UNSW course, and students intending to progress to Level II Chemistry must subsequently complete, in sequence, CHEM1011/CHEM1021, or CHEM1031/1041 (or CHEM1811/1821 for engineering students). Students who complete CHEM1001 can count this course as a Level 1 course towards the total units of credit (UoC) for the Science component of their degree.

The theoretical content of the course is delivered through a combination of online lessons, workshops and lectures with problem solving skills developed in weekly group-based tutorial classes. Theory is combined with the practical aspects of chemistry in weekly laboratory classes. There are typically 8 contact hours per week plus a guide that you should spend an hour of independent study for each contact hour.

Course Aims

The aim of Introductory Chemistry is to provide a basic understanding of the principles of chemistry. It provides chemical knowledge at high school level, and expands upon it to provide foundational learning for students who wish to undertake further university studies in chemistry. The course seeks to provide a basic understanding of atoms and molecules, introduces chemical naming, introduces the mole concept and ideas of solution concentrations and explores the basic types of chemical reactions for inorganic and some organic chemistry.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe basic chemical concepts of atoms, molecules, molecular structure, bonding, intermolecular forces, oxidation numbers, redox reactions.
CLO2 : Calculate outcomes of chemical processes using gas laws and analysis of reaction kinetics.
CLO3 : Employ the language of chemistry through the use of symbols, formulae, equations, and structures to communicate molecular composition.
CLO4 : Name simple organic compounds and common functional groups.
CLO5 : Predict the products of and propose reagents for common organic reactions.
CLO6 : Calculate quantities of reagents required to undertake reactions and analyses in a chemical laboratory using stoichiometric relationships and chemical quantities such as atomic mass, moles, concentrations and limiting reagents.

Course Learning Outcomes	Assessment Item
CLO1 : Describe basic chemical concepts of atoms, molecules, molecular structure, bonding, intermolecular forces, oxidation numbers, redox reactions.	• Mid-session Test • Weekly Online Revision Quizzes • Final Examination
CLO2 : Calculate outcomes of chemical processes using gas laws and analysis of reaction kinetics.	• Mid-session Test • Weekly Online Revision Quizzes • Final Examination
CLO3 : Employ the language of chemistry through the use of symbols, formulae, equations, and structures to communicate molecular composition.	• Laboratory Work • Mid-session Test • Weekly Online Revision Quizzes • Final Examination
CLO4 : Name simple organic compounds and common functional groups.	• Laboratory Work • Weekly Online Revision Quizzes • Final Examination
CLO5 : Predict the products of and propose reagents for common organic reactions.	• Laboratory Work • Weekly Online Revision Quizzes • Final Examination
CLO6 : Calculate quantities of reagents required to undertake reactions and analyses in a chemical laboratory using stoichiometric relationships and chemical quantities such as atomic mass, moles, concentrations and limiting reagents.	• Mid-session Test • Laboratory Work • Weekly Online Revision Quizzes • Final Examination

Learning and Teaching Technologies

Moodle - Learning Management System | Echo 360 | Blackboard Collaborate

Learning and Teaching in this course

The learning and teaching activities in this course consist of multiple teaching methods and modes of instruction which are delivered through a blended approach including Lectures (which may be live or pre-recorded), Tutorials, and Laboratories.

This course has been designed to engage you in learning by contextualising the material to students' prior experiences and knowledge. In addition, course content will be supplemented with interesting examples from research and industry. The laboratory component of this course will enable you to develop a proficiency in core chemistry laboratory skills while engaging in challenging and interesting laboratory practicals. In addition, this component of the course will contribute to the development of your higher-order analytical skills, while providing opportunity for cooperative learning with your peers.

Lectures and workshops - mixture of online and/or face-to-face

There are 4 hours of lectures and workshops each week. Depending on the lecturer and scheduling such as public holidays, classes will be delivered as either live sessions or as video recordings and or digital lessons.

Depending on the lecturer, some lectures will be delivered live in hybrid mode – i.e., you can attend in person or can watch and interact with the session live online. Lecture notes will be posted on Moodle. You are strongly encouraged to join the live session either in-person or online to receive feedback through online polling and to ask questions pertaining to content.

All workshops will be delivered live in hybrid mode, so again you can attend in person or online.

All lectures and workshops will be recorded. Lecture recordings will made available via the Lecture Recordings link on Moodle. However, there is no guarantee that the lecture recording software will capture the class correctly or even at all.

Tutorials (in-person only)

Each week you'll join a small-group tutorial in which you will delve more deeply into the focus topic. You are required to read through the tutorials in advance and identify questions that you would like the tutor to assist with answering. You are also encouraged to ask any further questions you might have regarding the focus topic.

Tutorials require in-person attendance on campus, and these will not be recorded.

Laboratory Classes

The laboratory classes provide an opportunity to learn the concepts and practice the calculations presented in lectures. Laboratory classes are also the place to learn practical skills and they are also the place where those skills are assessed.

Each week you will have a 3-hour lab class which will typically begin with a discussion of questions from a worksheet with the assistance of your instructor and peers. After this worksheet you will work on the practical experiment, recording your observations as you go. Once the observations are complete you will answer a few questions based upon these observations and submit a report at the end of the lab class.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Mid-session Test Assessment Format: Individual	10%	Start Date: Not Applicable
Laboratory Work Assessment Format: Individual	20%	
Weekly Online Revision Quizzes Assessment Format: Individual	10%	
Final Examination Assessment Format: Individual	60%	

Assessment Details

Mid-session Test

Assessment Overview

This is an invigilated test, held during one of the regular lecture slots in (approximately) week 4. The test consists of ~20 multi-choice questions. The test duration is 45 minutes. The course coordinator is available to provide one-on-one feedback, by appointment, after the test results are published online. This test covers lecture, tutorial and lab material from weeks 1-3. The test allows you to monitor your progress early on in the course.

A mark of 35% for the exam and mid-session test combined is required to pass the course.

Course Learning Outcomes

- CLO1 : Describe basic chemical concepts of atoms, molecules, molecular structure, bonding, intermolecular forces, oxidation numbers, redox reactions.
- CLO2 : Calculate outcomes of chemical processes using gas laws and analysis of reaction kinetics.
- CLO3 : Employ the language of chemistry through the use of symbols, formulae, equations, and structures to communicate molecular composition.
- CLO6 : Calculate quantities of reagents required to undertake reactions and analyses in a chemical laboratory using stoichiometric relationships and chemical quantities such as atomic mass, moles, concentrations and limiting reagents.

Detailed Assessment Description

For T1 2024, the test is planned for Week 5 during the scheduled exam time slot 1 pm - 2 pm Friday 15th March 2024.

This will be an in-person test on campus.

However, this is subject to change based on enrolment numbers and will be confirmed early in the term via Moodle announcement. If you cannot attend this lecture time due to a permitted timetable clash, please contact firstyearchem@unsw.edu.au as soon as possible. **Permitted clashes do not automatically excuse absences from the test.**

The official details will be posted on Moodle approximately 1–2 weeks before the date of the examination.

- IT IS ENTIRELY YOUR RESPONSIBILITY TO ASCERTAIN THESE DETAILS.
- No information regarding time and location will be given over the telephone.

The mark you obtain for the Mid-Session Test will be returned via Moodle within 10 working days, including the average mark for the test across the entire course and details of the learning outcome that were incorrectly answered in the test (if any). Please note that tests and the exam are summative assessments and attempts will not be returned to students.

Assignment submission Turnitin type

Not Applicable

Hurdle rules

A weighted test + examination mark of at least 35% (i.e. 24.5 out of 70) (The mid-term test is worth 10 marks, the final exam 60 marks)

Laboratory Work

Assessment Overview

The laboratory classes are designed to provide you with practical experience in the lab as well as develop your observational and data analysis skills. You will be provided with feedback on your progress from your demonstrator during lab classes and be able to view your skills portfolio in near-real-time by following a link in an online platform.

You are required to attend a minimum of 6/8 laboratory classes to meet the hurdle pass requirement for this course.

Laboratory work is assessed in two parts:

Core skills: These are everyday tasks that are used in a chemistry laboratory. You are required to achieve all core skills as a hurdle requirement to pass this course. In most cases you will be given multiple opportunities across several lab classes to demonstrate each core skill. Your

demonstrator will communicate with you when you have been marked as competent for a given skill. Once you have achieved all the core skills required in the lab you will be awarded 10% of the course marks.

Non-core skills: The remaining half of the laboratory mark will be determined from non-core skills assessment provided with each laboratory exercise, mostly in the form of questions about the exercises. The grades for these are tracked on your personalized online feedback page and will total up to 10% of the total course marks.

Course Learning Outcomes

- CLO3 : Employ the language of chemistry through the use of symbols, formulae, equations, and structures to communicate molecular composition.
- CLO4 : Name simple organic compounds and common functional groups.
- CLO5 : Predict the products of and propose reagents for common organic reactions.
- CLO6 : Calculate quantities of reagents required to undertake reactions and analyses in a chemical laboratory using stoichiometric relationships and chemical quantities such as atomic mass, moles, concentrations and limiting reagents.

Detailed Assessment Description

See laboratory manual on Moodle for details.

Hurdle rules

All core laboratory skills must be awarded (see laboratory manual for details), and you must attend and complete at least 6 out of 8 laboratory classes to pass the course.

Weekly Online Revision Quizzes

Assessment Overview

Most weeks during Term, there will be an online revision quiz for you to complete. The quizzes are accessed online. Each quiz consists of ~3 questions. You will need to get ALL answers correct in order to be awarded a mark of 1 for that quiz. Up to three attempts are allowed. At the end of Term, your best 8 quiz marks will be added together, then scaled to a mark out of 10. These quizzes are open-book, and are designed to be primarily formative rather than summative and they will cover the lecture and lab material for the corresponding (usually previous) week.

Course Learning Outcomes

- CLO1 : Describe basic chemical concepts of atoms, molecules, molecular structure, bonding, intermolecular forces, oxidation numbers, redox reactions.
- CLO2 : Calculate outcomes of chemical processes using gas laws and analysis of reaction kinetics.

- CLO3 : Employ the language of chemistry through the use of symbols, formulae, equations, and structures to communicate molecular composition.
- CLO4 : Name simple organic compounds and common functional groups.
- CLO5 : Predict the products of and propose reagents for common organic reactions.
- CLO6 : Calculate quantities of reagents required to undertake reactions and analyses in a chemical laboratory using stoichiometric relationships and chemical quantities such as atomic mass, moles, concentrations and limiting reagents.

Detailed Assessment Description

- To attempt a quiz, logon to Moodle (https://moodle.telt.unsw.edu.au/), navigate to your course and scroll down to the 'Revision Quizzes' section. Select the relevant quiz you wish to attempt. In most cases, only one quiz will be available at any given time.
- In most cases, quizzes are open for one week only. They generally open at 12:01am on Monday morning, and close at 11:59pm on Sunday night. These details are displayed in the quiz itself, before you make an attempt. During this time, you can make up to 3 attempts to answer the quiz questions (using any help you desire, taking as long as you want up until the quiz close time). You will most likely get a different version of the question on each attempt.
- You must get full marks on 1 of your 3 possible attempts at each quiz to get 1 added to your total quiz score. If you do not get full marks in any of your attempts, you will be awarded a score of zero for that quiz. **At the end of the term, your best 8 quiz marks will be added together then scaled to give a mark out of 10**, which will account for 10% of your final overall mark for this course.
- After the period for answering a quiz has closed, you will no longer be able to attempt the quiz. However, you will be given feedback and hints on how to answer the questions in the quiz immediately after each attempt.

Final Examination

Assessment Overview

The final exam is designed to summarise your learning and problem-solving skills on all topics covered in the syllabus, including material from lectures, tutorials and labs.

The exam is typically 2hrs 10 minutes in duration and consists of multiple choice and written-answer questions.

The examination will occur during the official university examination period.

A mark of 35% for the exam and mid-session test combined is required to pass the course.

Feedback is available through inquiry with the course convenor.

Course Learning Outcomes

- CLO1 : Describe basic chemical concepts of atoms, molecules, molecular structure, bonding, intermolecular forces, oxidation numbers, redox reactions.

- CLO2 : Calculate outcomes of chemical processes using gas laws and analysis of reaction kinetics.
- CLO3 : Employ the language of chemistry through the use of symbols, formulae, equations, and structures to communicate molecular composition.
- CLO4 : Name simple organic compounds and common functional groups.
- CLO5 : Predict the products of and propose reagents for common organic reactions.
- CLO6 : Calculate quantities of reagents required to undertake reactions and analyses in a chemical laboratory using stoichiometric relationships and chemical quantities such as atomic mass, moles, concentrations and limiting reagents.

Hurdle rules

A weighted test + examination mark of at least 35% (i.e. 24.5 out of 70) (The mid-term test is worth 10 marks, the final exam 60 marks)

General Assessment Information

Grading Basis

Standard

Requirements to pass course

A pass in CHEM1001 requires:

- **A course mark of at least 50;**
- **A weighted test/examination mark of at least 35% (i.e. 24.5 out of 70)**
- **All core laboratory skills awarded (*see laboratory manual for details*), and**
- **You attend and complete at least 6 out of 8 laboratory classes.**

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 2 : 19 February - 25 February	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 3 : 26 February - 3 March	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 4 : 4 March - 10 March	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 5 : 11 March - 17 March	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 6 : 18 March - 24 March	Laboratory	Flex week. Make-up labs only if required. See lab manual for details.
Week 7 : 25 March - 31 March	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 8 : 1 April - 7 April	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.
	Online Activity	Weekly assessable online revision quiz.
Week 9 : 8 April - 14 April	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	In-person laboratory on Campus (3 hours). See your personal timetable on MyUNSW for times.

	Online Activity	Weekly assessable online revision quiz.
Week 10 : 15 April - 21 April	Lecture	Weekly lectures and workshops (4 hours). See the course timetable for times and venues/online options.
	Tutorial	In-person tutorial on Campus (1 hour). See your personal timetable on MyUNSW for times.
	Laboratory	No scheduled laboratory in week 10. Make-up labs only if required. See lab manual for details.
	Online Activity	Weekly assessable online revision quiz.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

A more detailed schedule is available to enrolled students on Moodle.

Attendance at laboratories is compulsory to pass the course.

Tutorials require in-person attendance on campus, and these will not be recorded.

Course Resources

Prescribed Resources

- CHEM1001 lab Manual, School of Chemistry, UNSW (On sale at the UNSW Bookshop as part of the course pack, and available online via the CHEM1001 Moodle course page).
- CHEM1001 Tutorial Notes, School of Chemistry, UNSW (On sale at the UNSW Bookshop as part of the course pack, and available online via the CHEM1001 Moodle course page)
- PPE for lab (See lab manual for more details).

Recommended Resources

- Zumdahl, S.S., DeCoste, D.J., Introductory Chemistry, (9th ed.) Cengage, 2018.
- Aylward, G.H. and Findlay, T.J.V., SI Chemical Data, (6th ed.), Wiley, 2008 (or later).

Available from the UNSW Bookshop, or online from Wiley.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Graham Ball					Yes	Yes
Lab director	Ron Haines					No	No
Lecturer	Scott Sulway					No	No
Year coordinator	Shannan Maisey					No	No
Administrator	Trinah De Leon			+61293854651		Yes	No

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.
Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others'

ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.
Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The Current Students site,
- The ELISE training site, and
- The Use of AI for assessments site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or

submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- The Current Students Gateway
- Student Support
- Academic Skills and Support
- Student Wellbeing, Health and Safety
- Equitable Learning Services
- UNSW IT Service Centre
- Science EDI Student Initiatives, Offerings and Guidelines

School-specific Information

UNSW Changes to Special Consideration: Short Extension

The School of Chemistry has carefully reviewed all of its assessments to determine whether they are suitable for automatic short extensions as set out by the UNSW Short Extension Policy. The current deadline structures for all assessment tasks in the School of Chemistry already accommodate the possibility of unexpected circumstances that may lead students to require additional time for submission. **The School of Chemistry has opted out of the UNSW Short Extension provision for all its courses,** and we have already integrated flexibility into our assessment deadlines. This decision is subject to revision in response to the introduction of new course offerings. All students may still apply for Special Consideration for any assessment via the usual procedures.

School Contact Information

Level 1, Dalton Building (F12)

W: www.chemistry.unsw.edu.au

Also see: ***Contacts and Support*** section of the course Moodle page (where applicable)