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## CHEM103: Chemistry For Engineering

### Subject Outline

6 credit points

### Subject Information

Autumn, 2025, Wollongong  
On Campus

**On-Campus Delivery** This subject is delivered in-person and includes on-campus or other location-based learning activities that are not designed for students studying online/distance. Lectures will be delivered both online and on campus while workshops and laboratory practicals will be held on campus. Students unable to attend campus or any other nominated physical delivery location should not enrol in this subject unless they have extenuating circumstances, judged by the subject coordinator(s) during the enrolment period with supporting documentation.

Subjects with a delivery mode of On Campus and/or Flexible with International Student enrolments will be delivered in accordance with the ESOS National Code. That is, online learning experiences (such as lectures, tuition, and resources) will be supplementary to in-person learning experiences such as scheduled classes and/or scheduled contact hours.

*UOW may need to change teaching locations, teaching delivery and/or assessment delivery at short notice to ensure the safety and well-being of students and staff in response to the COVID-19 pandemic or other public health requirements.*

### The Faculty of Science, Medicine and Health

The Faculty of Science, Medicine and Health offers a range of undergraduate and postgraduate programs designed to meet the needs of a diverse student population. We carry out world-leading research which is strongly aligned with our teaching program

As a student of our faculty, you will be actively engaged in learning with extensive clinical experiences, use of advanced educational technologies and opportunities for enriching work experience. More information about the Faculty of Science, Medicine and Health and our School is available on our web pages:

<https://www.uow.edu.au/science-medicine-health/>

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### Teaching Staff Additional Information

Teaching staff and associated content delivery may be subject to change during the course of this subject: please refer to the subject handbook and updates via the associated Moodle site.

## Expectations of Students

UOW values are intellectual openness, excellence and dedication, empowerment and academic freedom, mutual respect and diversity, recognition and performance. We will provide a safe, equitable and orderly environment for the University community, and expect each member of our community to behave responsibly and ethically ([Student Conduct Rules](#)).

We expect that students demonstrate these values and professional behaviour, both face to face and online, making genuine efforts to complete their studies successfully, arriving on time to class, taking part constructively in class discussions and activities, demonstrating appropriate professional and ethical conduct in all communication with UOW staff and community members, and submitting assignments on time (or completing a request for Academic Consideration in advance if needed).

### Guiding Communication Principles for Students

**Moodle** Announcements will be the primary platform for communication of general information to students

- Students should ensure they regularly check the main announcements forum at the top of each subject's Moodle site.
- It is the student's responsibility to check all subject Moodle sites regularly for information and notifications.

**SOLS messages** will be used for all central communication relating to the following:

- Administrative matters relating to student enrolment
- Critical information relating to course or subject, e.g. Changes to assignments, policy updates, class cancellations or changes
- Timetable information
- Security and emergency information
- Students are encouraged to check SOLS messages daily as these messages are often of high priority

SOLS and Moodle announcements can NOT be responded to.

### Email

- Communication to UOW staff by students should only be via a UOW email account
- If you have a question of a general nature in relation to assessment questions, Moodle assignment forums should be used rather than email

Remember to use the same principles when communicating online as you would face-to-face. Be clear and respectful and communicate with the same consideration you would expect from others.

### Related Policies

- Online and email etiquette <https://tr.uow.edu.au/uow/file/976ffde2-b892-42cf-b20b-5c7a65bc08cc/1/Overview%20of%20Online%20and%20Email%20Etiquette.pdf>
- Using UOWmail <https://www.uow.edu.au/student/support-services/academic-skills/>
- Inclusive language guideline <https://documents.uow.edu.au/about/policy/students/UOW140611.html>
- The Student Charter <https://www.uow.edu.au/student/charter/>

### Appropriate Online Behaviour

The University is committed to providing a safe, respectful, equitable and orderly environment for the University community, and expects each member of that community to behave responsibly and ethically. Students must comply with the University's [Student Conduct Rules](#) and related policies including the [IT Acceptable Use Policy](#) and [Bullying Prevention Policy](#), whether undertaking their studies face-to-face, online.

For more information on appropriate communication and etiquette in the online environment please refer to the guide [Online and Email Etiquette](#).

## **Related Policies**

Using UOWmail <https://www.uow.edu.au/student/support-services/academic-skills/>

Inclusive language guideline <https://policies.uow.edu.au/document/view-current.php?id=239>

## **Copyright**

**Commonwealth of Australia**

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Hardcopies of this document are considered uncontrolled please refer to your Moodle site for the latest version.

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# Section A: General Information

## Learning Outcomes

### Subject Learning Outcomes

On successful completion of this subject, students will be able to:

1. Predict or analyse the macroscale properties of chemical or material systems by analysis of molecular scale properties
2. Apply principles of energy, heat, entropy, spontaneity, equilibrium and rate to predict or analyse the outcomes of chemical and physical processes
3. Apply the mole concept to material and energy quantities in chemical and physical processes
4. Apply chemical structure concepts to organic compounds especially in polymers and industrial materials to analyse or predict properties or uses
5. Perform lab based investigations safely, record experimental results, interpret and communicate conclusions based on observations

### Subject Description

This subject provides an introduction to fundamental chemistry with a focus on topics applicable to engineering. These topics follow themes: chemical language, what matter is, how matter behaves (chemical reactions) and applications/considerations (industrial processes and environmental chemistry). The discussion of matter links chemistry with engineering and emphasises metals, semiconductors, polymers, fuels and concrete. Chemical reactions are discussed from different perspectives: 'how hot' (thermochemistry), 'how far' (chemical equilibrium/acid-base equilibria), 'how fast' (chemical kinetics) and electronics (electrochemistry). These learned concepts are applied in laboratory experiments, which introduce skills such as scientific observation, laboratory technique, instrumental analysis and critical analysis (including report writing). Other skills developed include using mathematics to solve chemistry problems, balancing chemical equations, relating molecular scale properties to macroscale properties and working collaboratively to solve problems.

### Course Handbook

Information about subject pre-requisites, co-requisites and restrictions as well as course completion requirements and Course Learning Outcomes can be found in the [Course Handbook](#).

## Subject Details: Practical Activities, eLearning, Readings and Materials

### Subject eLearning

The University uses the eLearning system Moodle to support all coursework subjects. The subject Moodle site can be accessed via your SOLS page.

### Safety Guidelines

The rules below are general rules that are required when participating in labs, practicals, fieldwork or simulated fieldwork activities. Before commencing these activities you are to ensure that you understand specific procedures and policy related to safety.

- All first year students undertaking Chemistry (CHEM101/102/104/105) must complete the Moodle WHS Induction (see details below)
- Before commencing lab/practical/fieldwork activity you are to ensure that you understand specific procedures and policy related to safety.
- You may need to review a Risk Assessment and complete a Participant Acknowledgement form before commencing any fieldwork/practical work. These materials will be made available by the supervisor/Subject Coordinator.

- You must inform the Subject Coordinator of any medical conditions which may impact upon your ability to participate in these activities before commencing the practical.
- All Reasonable Adjustment cases (Access Plans) must be discussed with the Subject Coordinator prior to commencing the activity.
- Participation in the lab/practical/field/simulation activities may be denied to students who do not abide by these, and other conditions which may be specified by the Subject Coordinator.
- Never use any equipment or attempt any experiment without checking the safety implications with your laboratory supervisor or experienced delegated laboratory worker
- Undergraduate students are not permitted to work after hours unless there is appropriate approval and supervision.
- For subjects including field trips, students may be required to contribute to costs associated with the provision of field trips that form part of the course of study.

## FOUNDATIONAL Work Integrated Learning

This subject contains elements of 'Foundational WIL'. Students in this subject will observe, explore or reflect on possible career pathways or a work-related aspect of their discipline.

### Additional Subject Details

#### Beginning Laboratory classes:

Before entry to the laboratory classes the Work Health and Safety (WHS) induction (open in the CHEM103 Moodle site) must be completed before your first allocated lab class time in Week 2. You will not be permitted to enter the laboratory until the WHS induction is complete.

#### Using Generative Artificial Intelligence (GenAI)

GenAI technology (such as ChatGPT or Microsoft Co-pilot) is reshaping the University experience worldwide. UOW is committed to embracing GenAI as a tool to enhance learning experiences and develop vital work-readiness skills. However, misuse or use of GenAI in assessments where prohibited constitutes academic misconduct (as specified by [University Policy](#)).

**It is important that students check if GenAI is permitted** for each assessment task and how it is to be used and acknowledged. Please read the [student guidance](#) available on how to use GenAI ethically and critically, equally recognising its capabilities and limitations. For example:

1. **Generative AI is not a substitute for decision-making:** GenAI should complement, not replace, your critical thinking and decision-making skills.
2. **Output quality depends on prompts:** The quality of GenAI outputs is influenced by prompting. Poorly constructed or unclear prompts may generate outputs that are incorrect.
3. **Fact verification is essential:** GenAI outputs can be fabricated, presenting inaccurate information or contain harmful bias. Verify all GenAI outputs against reliable sources.
4. **Protect data and copyright:** Many GenAI technologies collect information in ways that breach privacy and data protection provisions, particularly where the source material is confidential or subject to copyright. Please check the Terms and Conditions of GenAI technologies and if unsure, contact [UOW Copyright Guidance](#). Learn more about how to access UOW secured GenAI tools [here](#).
5. **Transparency in use:** Where required, you must acknowledge GenAI use, including providing prompt histories and detailing how GenAI was utilised.
6. **Thoughtful and appropriate application:** Be mindful of when and how to use GenAI tools. Assess its appropriateness for each use, and refrain from use when not suitable.

If you have any questions, please contact your Subject Coordinator.

### Major Text(s)

Brown, T.L. et al "Chemistry: The Central Science: Global Edition" i.e. 15th Edition, Pearson 2022.

If there is a textbook available for purchase, you can find the details at University Bookshop <https://unishop.uow.edu.au/>



## Recommended Readings and Other Resources

Essential readings and reference material related to the report for the extended project: The Chemistry of Concrete will be made available via the Moodle site for this subject.

This is not an exhaustive list of references. Students should also use the library catalogue and databases to locate additional resources.

## Additional Materials

- Laboratory coat and Safety glasses (available from the UniShop)
- Subject handbook which includes workshop and laboratory templates (available from the Unishop)

## Lectures, Tutorials and Attendance Requirements

### Lecture Times \*

*UOW may need to change teaching locations, teaching delivery and/or assessment delivery at short notice to ensure the safety and well-being of students and staff in response to the COVID-19 pandemic or other public health requirements.*

Up to date timetable and delivery information is located at <http://www.uow.edu.au/student/timetables/index.html>

You can access your personal timetable by logging into SOLS and selecting 'My Timetable'

### Lecture Program \*

Week	Commencing	Topics Covered	Readings
1	05 Mar 2025	<u>The Language of Chemistry</u>	Readings: Chapter 1 pg 46-60; Chapter 2 pg 89-125. <i>Live lecture Tue 12:30-13:30 (20.1)</i>
2	12 Mar 2025	<u>Quantity in Chemistry</u>	Readings: Chapter 3 pg 134-162; Chapter 4 pg 201-208. <i>Live lecture Tue 12:30-13:30 (20.1)</i>
3	19 Mar 2025	<u>Matter on the Molecular Scale</u>	Readings: Chapter 8 pg 369-400; Chapter 9 pg 412-429 <i>Live lecture Tue 12:30-13:30 (20.1)</i>
4	26 Mar 2025	<u>Matter on the Macroscale Part 1</u>	Readings: Chapter 10 pg 472-506; Chapter 11 pg 517-547 <i>Live lecture Tue 12:30-13:30 (20.1)</i> <b>Online Quiz #1 Due Sunday March 23</b>
5	02 Apr 2025	<u>Matter on the Macroscale Part 2</u>	Reading: Chapter 12 pg 560-601; Chapter 13 pg 613-644 <i>Live lecture Tue 12:30-13:30 (20.1)</i>
6	09 Apr 2025	<u>Thermochemistry</u>	Readings: Chapter 5 pg 219-261; Chapter 19 pg 904-912 <i>Live lecture Tue 12:30-13:30 (20.1)</i>
7	16 Apr 2025	<u>Chemical Equilibrium</u>	Readings: Chapter 15 pg 715-738 <i>Live lecture Tue 12:30-13:30 (20.1)</i> <b>Online Quiz #2 Due Sunday 13 April</b>
	21 Apr 2025	<b>Mid-Session Recess</b>	
8	30 Apr 2025	<u>Acid-Base Equilibria</u>	Readings: Chapter 16 pg 757-802 <b>Mid-Session Quiz (in assigned lab class time)</b> <i>Live lecture Tue 12:30-13:30 (20.1)</i>

9	07 May 2025	<u>Electrochemistry</u>	Readings: Chapter 17 pg 813-852; Chapter 18 pg 864-893 <i>Live lecture Tue 12:30-13:30 (20.1)</i>
10	14 May 2025	<u>Chemical Kinetics</u>	Readings: Chapter 14 pg 658-700 <i>Live lecture Tue 12:30-13:30 (20.1)</i> <b>Online Quiz #3 Due Sunday 12 May</b>
11	21 May 2025	<u>Environmental Chemistry</u>	Readings: Chapter 17 pg 813-852; Chapter 18 pg 864-893 <i>Live lecture Tue 12:30-13:30 (20.1)</i>
12	28 May 2025	<u>Industrial Organics</u>	Readings: Chapter 24 pg 1149-1175; Chapter 26 pg 1240-1243 <b>Concrete Report Due Sunday May 25</b> <i>Live lecture Tue 12:30-13:30 (20.1)</i>
13	04 Jun 2025	<u>Review of Content</u>	<i>Live lecture Tue 12:30-13:30 (20.1)</i> <b>Online Quiz #4 Due Sunday June 1</b>
	09 Jun 2025	<b>Study Recess</b>	
	14 Jun 2025	<b>Examinations</b>	
	21 Jun 2025	<b>Examinations</b>	

\* The above times and program may be subject to change. Students will be notified of any change via SOLS.

### Additional Lecture Comments

#### Lecture Program:

New content will be delivered online (2 hrs content per week) and the recordings made available. Please refer to the subject handbook and updates via the associated Moodle site for specific times for this content delivery. One live lecture will be held each week (1 hr per week) comprising of revision of the online content from the previous week with associated practice questions.

### Recording of Teaching and Learning Activities

The University of Wollongong supports the recording of UOW educational content as a supplemental study tool, to provide students with equity of access, and as a technology-enriched learning strategy to enhance the student experience.

If you make your own recording of a lecture, class, seminar, workshop or any other educational session provided as part of your course of study you can only do so with the explicit permission of the lecturer and those people who are also being recorded.

You may only use educational content recorded through the delivery of subject or course content, whether they are your own or recorded by the university, for your own educational purposes. Recordings cannot be altered, shared or published on another platform, without permission of the University, and to do so may contravene the University's Copyright Policy, Privacy Policy, Intellectual Property Policy, IT Acceptable Use Policy and Student Conduct Rules. Unauthorised sharing of recordings may also involve a breach of law under the Copyright Act 1969.

Most lectures in this subject will be recorded, when they are scheduled in venues that are equipped with lecture recording technology and made available via the subject Moodle site within 48 hours.

## Your Privacy - Recording of Teaching and Learning

In accordance with the Student Privacy & Disclosure Statement, and Lecture Recording Procedures when undertaking our normal teaching and learning activities, the University may collect your personal information. This collection may occur incidentally during the recording of lectures in equipped venues (i.e. when your identity can be ascertained by your image, voice or opinion), or via the delivery of online content therefore the University further advises students that:

- Lecture recordings are made available to students, university staff, and affiliates, securely via the Learning Platform;
- Recordings are made available only for the purpose for which they were recorded, for example, as a supplemental study tool or to support equity and access to educational resources;

If you have any concerns about the use or accuracy of your personal information collected in a lecture recording, you may approach your Subject Coordinator to discuss your particular circumstances.

The University is committed to ensuring your privacy is protected. If you have a concern about how your personal information is being used or managed, please refer to the University's Privacy Policy or consult our Privacy webpage <https://www.uow.edu.au/privacy/>

### Tutorial/Seminar/Workshop Times

The Faculty uses the SMP Online Tutorial System and tutorial times and locations can be found at <https://www.uow.edu.au/student/timetables/index.html>. Please note that tutorial times on the timetable are provisional and may change.

### Tutorial/Seminar/Workshop Program

Where the restrictions require temporary adjustments for delivery and tutorial/seminar/workshop arrangements, any necessary changes will be advised and provided by your Subject Coordinator. Please check Subject Moodle site regularly

Week	Week Commencing	Topics Covered	Readings and Activities
2	10 Mar 2025	<b>Lab 1: Chemical Reactions and Safety in the Laboratory</b>	<i>Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.</i>
3	17 Mar 2025	<b>Workshop 1: Ionic Compounds and Solutions</b>	<i>Complete pre-workshop activity (online via Moodle) and short quiz (in class).</i>
4	24 Mar 2025	<b>Lab 2: Iron in Water</b>	<i>Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.</i>
5	31 Mar 2025	<b>Workshop 2: Intra- and Intermolecular Bonding</b>	<i>Complete pre-workshop activity (online via Moodle) and short quiz (in class).</i>
6	07 Apr 2025	<b>No Labs or Workshops</b>	
7	14 Apr 2025	<b>Workshop 3: Thermochemistry</b>	<i>Complete pre-workshop activity (online via Moodle) and short quiz (in class).</i>
	21 Apr 2025	<b>Mid-Session Recess</b>	
8	28 Apr 2025	<b>No labs or workshops (mid-session quiz will take place)</b>	Complete the mid-session quiz in the first year laboratory during your allocated lab time.
9	05 May 2025	<b>Workshop 4: Equilibrium</b>	<i>Complete pre-workshop activity (online via Moodle) and short quiz (in class).</i>

10	12 May 2025	<b>Lab 3: Redox Chemistry and Corrosion</b>	<i>Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.</i>
11	19 May 2025	<b>Workshop 5: Electrochemistry</b>	<i>Complete pre-workshop activity (online via Moodle) and short quiz (in class).</i>
12	26 May 2025	<b>No labs or workshops (concrete report due)</b>	<i>Submission of report on extended project: The Chemistry of Concrete (based on laboratory data collected throughout the semester) to be submitted via Turnitin on the subject Moodle site.</i>
	09 Jun 2025	<b>Study Recess</b>	
	14 Jun 2025	<b>Examinations</b>	
	21 Jun 2025	<b>Examinations</b>	

The above program may be subject to change.

## Recent Improvements to Subject

The Faculty of Science, Medicine and Health is committed to continual improvement in teaching and learning and takes into consideration student feedback from many sources including, direct student feedback to tutors and lecturers and responses to the Subject and Course Evaluation Surveys.

This subject has been moved back to face-to-face learning to allow increased participation in laboratory activities which are critical to achieving the learning outcomes. The number of workshops has been increased to facilitate student learning and a number of assessment items (workshop quizzes, laboratory assessments, mid-session quiz and final exam) will be completed in person to ensure academic integrity.

## Extraordinary Changes to the Subject Outline

In extraordinary circumstances the provisions stipulated in this Subject Outline may require amendment after the Subject Outline has been distributed. All students enrolled in the subject must be notified and have the opportunity to provide feedback in relation to the amendment, where practicable, prior to the amendment being finalised.

## Learning Analytics

Learning Analytics data (such as student engagement with Moodle, access to recorded lectures, University Library usage, task marks, and use of SOLS) may be used by the Subject Coordinator and your faculty's Head of Students to assist in analysing student engagement, and to identify and recommend support to students who may be at risk of failure. If you have questions about the kinds of data the University uses, how we collect it, and how we protect your privacy in the use of this data, please refer to <https://www.uow.edu.au/privacy/>

## Section B: Assessment

### Assessment Summary

Assessment Item	Form of Assessment	%
Assessment 1	Lab/Prac/Simulation	25%
Assessment 2	Assignment	10%
Assessment 3	Quiz	20%
Assessment 4	Assignment	10%
Assessment 5	Exam	35%
	<b>TOTAL MARKS</b>	100%

**Please note:** Copies of student work may be retained by the University in order to facilitate quality assurance of assessment processes.

A formative assessment activity (with written or verbal feedback) will be conducted before census date - please see [UOW Key Dates](#).

### Assessment 1: Lab/Prac/Simulation - Laboratory Reports

<b>Marking Criteria</b>	Completion of pre-lab activity, laboratory activity and associated template; correct calculations, equations, diagrams and/or observations, explanations of laboratory concepts in short post-lab quiz; completion of written report (The Chemistry of Concrete) and correct explanation of chemical concepts therein.
<b>Length</b>	LAB 1: Short, online pre-lab activity (5-10 minutes) and post-lab quiz (no more than 15 minutes) worth 5% in total. LAB 2: Short, online pre-lab activity (5-10 minutes) and post-lab quiz (no more than 15 minutes) worth 5% in total. LAB 3: Short, online pre-lab activity (5-10 minutes) and post-lab quiz (no more than 15 minutes) worth 5% in total. CONCRETE REPORT: written report (submitted via Turnitin, no more than 5 pages) worth 10%.
<b>Weighting</b>	25%
<b>Assessment Due</b>	10 Mar 2025 (In your assigned tutorial in Session Week 2) 24 Mar 2025 (In your assigned tutorial in Session Week 4) 12 May 2025 (In your assigned tutorial in Session Week 10) 01 Jun 2025 (Sunday in Session Week 12)
<b>Type of Collaboration</b>	Individual assessment
<b>Style and format</b>	Pre-lab activity will be presented as an interactive video with embedded questions relating to this content and is to be completed before the assigned laboratory class. Post-lab quizzes will be conducted in the final 15 minutes of the laboratory class as an open-book, in-person quiz and contain short answer and/or multiple choice questions including calculations. The concrete report is to be completed in own time and will require students to summarise their findings from their extended concrete project and answer specific questions to guide their discussion. These questions will be provided to students during the semester.
<b>Assessment submission</b>	Pre-lab activity completed/submitted via Moodle; laboratory template to be checked by laboratory demonstrator during practical class; post-lab quizzes to be submitted to demonstrator before leaving assigned laboratory class; concrete report to be submitted via Turnitin (within Moodle).

	This assessment has been set up to be checked by Turnitin, a tool which helps you check whether you have referenced correctly. You can submit your assessment task to Turnitin prior to the due date and Turnitin will give you an originality report. You may then make any changes that may be required and resubmit your final version by the due date.
<b>Assessment return</b>	Pre-lab activity outcomes are generated upon completion; general feedback/sample answers for post-lab quizzes will be provided via Moodle and specific feedback by demonstrators available within 2 weeks of submission. The concrete report will be marked and feedback returned via Moodle/Turnitin within 2 weeks of submission.
<b>Detailed information</b>	<p>This is a hurdle assessment. Students are expected to attend all laboratories (100% attendance). Absences may impact ability to accomplish the learning outcomes.</p> <p>There are three (3) laboratory classes across the session. The 25% for the laboratory reports is calculated as 5% from each lab class (including pre-lab activity, template completion and post-lab quiz results) and 10% for the concrete report. Students may miss one (1) laboratory due to illness or other misadventure without incurring an academic penalty. If a student misses a subsequent laboratory, even if this absence is due to illness or other misadventure, they will be at risk of receiving a technical fail for the subject. If you have MISSED TWO laboratory classes you must contact the subject coordinator urgently.</p> <p>If you are unable to make your laboratory class but could make an alternate time that week please email CHEM103-admin@uow.edu.au to arrange a swap.</p> <p>Students must complete the prelab (available on the CHEM103 Moodle site) BEFORE they attend their laboratory class, this is worth 10% of your mark (2/20). The overall lab mark will be a composite of the prelab and post-lab quizzes, as well as completion of the laboratory template.</p>

### Assessment 2: Assignment - Workshop Quizzes

<b>Marking Criteria</b>	Correct answers to multiple choice questions.
<b>Length</b>	A short (5 minute) quiz completed at the end of each workshop. Approximately 3 multiple choice questions.
<b>Weighting</b>	10%
<b>Assessment Due</b>	17 Mar 2025 (In your assigned tutorial in Session Week 3) 31 Mar 2025 (In your assigned tutorial in Session Week 5) 14 Apr 2025 (In your assigned tutorial in Session Week 7) 05 May 2025 (In your assigned tutorial in Session Week 9) 19 May 2025 (In your assigned tutorial in Session Week 11)
<b>Type of Collaboration</b>	Individual assessment
<b>Style and format</b>	On-campus assessment, open-book.
<b>Assessment submission</b>	At the end of each workshop.
<b>Assessment return</b>	Marks available on SOLS within 1 week. Students can request to see their quizzes by contacting the subject coordinator.
<b>Detailed information</b>	<p>Students are expected to attend all workshops (100% attendance). Absences may impact ability to accomplish the learning outcomes.</p> <p>There are five (5) workshop classes across the session. The 10% assessment mark will be <b>calculated as an average of your best four (4) workshop marks</b>. Students may miss one (1) workshop without incurring an academic penalty. If a student misses a subsequent workshop, even if this absence is due to illness, they will be awarded a mark of zero for that class.</p>

	<p><b>Students should NOT apply for Academic Consideration for a missed tutorial class.</b></p> <p>If you are unable to make your workshop class but could make an alternate time that week please email CHEM103-admin@uow.edu.au to arrange a swap.</p> <p>Students must complete the pre-workshop (available on the CHEM103 Moodle site) BEFORE they attend their tutorial.</p>
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### Assessment 3: Quiz - Mid-session test

<b>Marking Criteria</b>	Correct answers to multiple choice and short answer questions.
<b>Length</b>	80 minute quiz.
<b>Weighting</b>	20%
<b>Assessment Due</b>	28 Apr 2025 (In your assigned tutorial in Session Week 8)
<b>Type of Collaboration</b>	Individual assessment
<b>Style and format</b>	In-person, closed book quiz. Combination of multiple choice and short answer questions. Questions may require students to complete calculations, diagrams, graphs, chemical structures and schemes. Completed in the first year lab during your assigned laboratory time in Week 8.
<b>Assessment submission</b>	
<b>Assessment return</b>	Within 2 weeks of quiz completion. Quizzes will be returned during assigned laboratory class time in Week 10 and general feedback provided via Moodle. Marks will be available via SOLS.
<b>Detailed information</b>	The Mid-Session Quiz will be completed in Week 8 during your allocated laboratory time. If you miss the Mid-Semester Quiz due to illness or other misadventure you should apply for Academic Consideration with supporting documentation to request an opportunity to sit a deferred quiz.

### Assessment 4: Assignment - Moodle Homework

<b>Marking Criteria</b>	Mark is based on accuracy of answers to multiple choice questions and calculations.
<b>Length</b>	Moodle quiz questions (no more than 10) approximately equivalent to 2 written pages.
<b>Weighting</b>	10%
<b>Assessment Due</b>	30 Mar 2025 (Sunday in Session Week 4) 20 Apr 2025 (Sunday in Session Week 7) 18 May 2025 (Sunday in Session Week 10) 08 Jun 2025 (Sunday in Session Week 13) Final submission time: 11:59pm
<b>Type of Collaboration</b>	Individual assessment
<b>Style and format</b>	Online Moodle Quiz containing multiple choice questions and calculations.
<b>Assessment submission</b>	Online via Moodle
<b>Assessment return</b>	Marks automatically provided upon submission. Correct answers or worked sample answers will be provided once the quiz is closed.
<b>Detailed information</b>	Open for two weeks and the quiz is not timed: the questions can be printed and worked through at students' own pace before entering final answers. A second attempt is available and the higher mark will be used. Extensions are not typically granted unless under extreme circumstance at the discretion of the Subject Coordinator(s).

### Assessment 5: Exam - Final Exam

<b>Marking Criteria</b>	Correctness of final answers or answers to multiple choice questions; logical calculations and/or explanations provided; units provided where appropriate.
<b>Length</b>	120 minutes.
<b>Weighting</b>	35%
<b>Assessment Due</b>	The final exam will be held during the UOW exam period, and students should ensure they are available during this period. Students will receive a SOLSmail advising when full details of the delivery format, and date of the final exam are available in the SOLS Exam Timetable.
<b>Type of Collaboration</b>	Individual assessment
<b>Style and format</b>	Final exam will be held on campus during the exam period and consist of multiple choice questions and may include short-answer questions. Additional information regarding the format will be made available via the Moodle site towards the end of session.
<b>Detailed information</b>	The Final Exam will be held during the exam period. If you miss the Final Exam due to illness or other misadventure you should apply for Academic Consideration with supporting documentation to request an opportunity to sit a deferred exam.

### Minimum Requirements to Pass this Subject

To receive a passing grade in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%. The minimum performance requirements for this subject are:

- 1) Obtain a pass mark (50% of the available marks) for the subject overall.
- 2) Obtain a pass mark (50% of the available marks) for the laboratory component of the subject.

### Hurdle Assessment

Subjects may include a hurdle assessment. A hurdle assessment is an assessment that requires a minimum level of performance as a condition for passing the subject. Examples include, achievement of a pass grade or above in a skills-based assessment or final examination. Hurdle assessments are applied to subjects to ensure students:

1. meet learning outcomes
2. demonstrate you can complete a task safely and/or meet professional standards.

For more on hurdle assessments see the Assessment and Feedback Policy [Section 8: Hurdle Assessments \(50-51-52\)](#).

Should this subject contain a hurdle assessment, it will be stated under the specific assessment in Section B: Assessments.

### UOW Grade Descriptors

The UOW Grade Descriptors are general statements that communicate what our grades represent, in terms of standards of performance, and provide a frame of reference to ensure that assessment practice across the University is appropriate, consistent and fair. Grade Descriptors are expressed in general terms so that they are applicable to a broad range of disciplines. Grade Descriptors are available here <https://www.uow.edu.au/student/exams/results/>. For more information on the UOW grade descriptors refer to the Teaching and Assessment: Assessment and Feedback Policy: [Teaching and Assessment: Assessment and Feedback Policy](#)



## Assessment Learning Outcome Matrix

Learning Outcomes	Measures - Assessment weighting				
	Laboratory Reports <i>(25%)</i>	Workshop Quizzes <i>(10%)</i>	Mid-session test <i>(20%)</i>	Moodle Homework <i>(10%)</i>	Final Exam <i>(35%)</i>
Predict or analyse the macroscale properties of chemical or material systems by analysis of molecular scale properties		✓	✓	✓	✓
Apply principles of energy, heat, entropy, spontaneity, equilibrium and rate to predict or analyse the outcomes of chemical and physical processes		✓	✓	✓	✓
Apply the mole concept to material and energy quantities in chemical and physical processes		✓	✓	✓	✓
Apply chemical structure concepts to organic compounds especially in polymers and industrial materials to analyse or predict properties or uses		✓		✓	✓
Perform lab based investigations safely, record experimental results, interpret and communicate conclusions based on observations	✓				

### Submission, Retention and Collection of Written Assessment

Assessed work must be handed in by the date and time listed under each assessment task. All assessment tasks must represent the enrolled student's own ORIGINAL work and must not have been previously submitted for assessment in any formal course of study.

#### Extensions

Students requesting an extension of time to submit an assessment task, deferred exam or exemption of a compulsory attendance requirement, must apply using Academic Consideration through SOLS. Students must apply before, or on the assessment/s due date and where evidence is required, students must provide evidence no later than three working days after the assessable item's due date for their request to be considered. **For information on the Academic Consideration Policy, eligibility requirements and how to apply, see:** <https://www.uow.edu.au/student/admin/academic-consideration/>

#### Late Submission of Assessment Tasks and Penalties

Assessed work must be submitted in by the date and time given. If an assessment is submitted late, it will be marked in the normal way, and a penalty will then be applied.

In the absence of an approved request for Academic Consideration in the form of an extension, assessment tasks must be submitted in line with the assessment instructions.

- An assessment task that is submitted late will receive a penalty of 5% of the total possible marks for each 24-hour period, or part thereof, that it is late.
- Work submitted after seven calendar days will not be marked and will be given a mark of 0.
- No assessment task can be handed in for a mark once the assessment task has been returned to students.
- Penalties accrue on each day that the assessment task is late, including Saturday, Sunday and public holidays

Note: Assessments must still be submitted to meet minimum performance requirements even though no mark is to be awarded.

### **Quiz Completion**

Where there is a quiz component, any student who has not attempted and submitted a quiz within the specified timeframe will receive 0 (zero) marks for this assessment type. The quiz will not be reopened, and no alternative assessment will be set without extenuating circumstances and an approved academic consideration application. Late penalties do not apply to quizzes. If a student attempts a quiz but for technical issues is not able to submit the quiz, students must show evidence and apply for an academic consideration to sit a supplementary quiz.

### **Collection**

Students will be notified when they can collect or view their marked assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.

### **Retention**

The university may retain copies of student work in order to facilitate quality assurance of assessment processes, in support of the continuous improvement of assessment design, assessment marking and for the review of the subject. The University retains records of students' academic work in accordance with the University Records Management Policy and the State Records Act 1988 and uses these records in accordance with the University Privacy Policy and the Privacy and Personal Information Protection Act 1998.

### **Scaling**

Marks awarded for any assessment task or part of any assessment task, including an examination may be subject to scaling at the end of the session. Marks will be scaled only when unpredicted circumstances occur and in order to ensure fairness of marking across groups of students. The method of scaling will depend on the type of scaling required by the circumstances. When scaling is deemed necessary, it will follow a detailed consideration by the Unit Assessment Committee and/or the Faculty Assessment Committee of the marks of the group of students concerned. Scaling will not affect any individual student's rank order within their cohort. For more information please refer to [Finalisation of Student Results Policy](#) for details.

### **Supplementary Assessment**

Supplementary assessment may be offered to students whose performance in this subject is close to that required to pass the subject, and are otherwise identified as meriting an offer of a supplementary assessment. For information about eligibility criteria and the form and timing of supplementary assessments see the [Supplementary Assessment Procedure](#)

### **Review and Appeal of Academic Decisions**

A student may request an explanation of a mark for an assessment task or a final grade for a subject consistent with the student's right to appropriate and useful feedback on their performance in an assessment task. A student may also seek further explanation for other academic decisions such as Academic Consideration, Supplementary Assessment or Credit for Prior Learning. If a student is not satisfied with the explanation, or have further concerns, they may have grounds for a formal review. For further information refer to [Review and Appeal of Academic Decisions Policy](#)

### **Assessment Quality Cycle**

The UOW Assessment Quality Cycle provides a level of assurance that assessment practices across the University are appropriate, consistent and fair. Quality assurance activities are undertaken to support the continuous improvement of assessment and promote good practices in relation to assessment design, marking and review of the subject prior to subsequent delivery.

## **Academic Integrity**

The University's Academic Integrity Policy, faculty handbook and subject guides clearly set out the University's expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work (either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as 'resources'), is extremely unwise. Students who provide an assessment item (or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. Uploading an assessment task, subject outline or other course materials without express permission of the University is considered academic misconduct and students place themselves at risk of being expelled from the University.

Students should visit the following University website and become familiar with the University's policy on plagiarism [Academic Integrity Policy](#)

## **Referencing**

The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at: <http://uow.libguides.com/refcite>

## Section C: General Advice for Students - Policies and Procedures

### Student Services and Support

There are a range of services available to students that are provided free of charge. A good place to get to know services that may be of use to you is the [Get Started @ UOW](#) or search for "Get Started @ UOW". Services available include:

Service	Link to information about the service
Aboriginal & Torres Strait Islander	<a href="https://www.uow.edu.au/about/services/woolyungah-indigenous-centre/about-us/">https://www.uow.edu.au/about/services/woolyungah-indigenous-centre/about-us/</a>
Careers advice	<a href="https://www.uow.edu.au/student/careers/">https://www.uow.edu.au/student/careers/</a>
Counselling	<a href="https://www.uow.edu.au/student/support-services/counselling/">https://www.uow.edu.au/student/support-services/counselling/</a>
Student Accessibility and Inclusion (SAI)	<a href="https://www.uow.edu.au/student/support-services/sai/">https://www.uow.edu.au/student/support-services/sai/</a>
Information Tech.	<a href="https://www.uow.edu.au/its/index.html?ssSourceSiteId=getstarted">https://www.uow.edu.au/its/index.html?ssSourceSiteId=getstarted</a>
Study Skills	<a href="https://www.uow.edu.au/student/support-services/academic-skills/">https://www.uow.edu.au/student/support-services/academic-skills/</a>

### Student Support Coordinator (SSC)

If you have a temporary or ongoing issue or a problem that is affecting your study, including issues that are related to belonging to an equity group, then the Student Support Coordinators may be able to help. There are Student Support Coordinators available to assist students who are studying at all UOW Campuses and in all UOW Faculties. Contact details can be found on the UOW website: <https://www.uow.edu.au/student/support-services/coordinators/>

### Student Advocacy Service

The Student Advocacy Service (SAS) is free, confidential and independent service for all UOW students. The SAS provides advocacy and referral for a range of academic, procedural and administrative issues. For more information visit: <https://www.uow.edu.au/student/support-services/advocacy/>

### AskUOW

AskUOW is your primary administrative and information contact during your studies.

Our purpose is to ensure students have access to the information they need, at the time they need it. We can help with a wide range of enquiries, including key topics such as:

- Applying for [academic consideration](#)
- Fees and scholarships
- Official documentation and student letter requests
- Student forms such as course transfer and leave of absence applications
- Student ID card issuance and replacement
- Subject enrolment
- Transport concession cards and Opal cards
- Updating personal details

Get instant answers 24/7 online using [AskUOW](#). Log in with your UOW username and password.

For further support contact [askuow@uow.edu.au](mailto:askuow@uow.edu.au) or call on 1300 275 869 (1300 ASK UOW) or +61 2 4221 3927.

## Library Services

Save yourself time and enhance your studies: connect with information specialists and resources anytime, anywhere.

- For Library support connect with [Live Chat](#) or [contact the Library](#).
- For self-help see [Frequently Asked Questions](#) or browse [Library guides](#) to find information, databases and skills tutorials.
- [Research consultations](#) are available to UOW Postgraduate, Honours and Deans Scholar students.

## Academic Integrity Policy

Academic integrity involves upholding ethical standards in all aspects of academic work, including learning, teaching and research. It involves acting with the principles of honesty, fairness, trust and responsibility and requires respect for knowledge and its development. The Policy can be found at:

<https://policies.uow.edu.au/document/view-current.php?id=26>

## Code of Practice - Research

This Code mandates the current policy and best practice relating to procedures for responsible research. The Code can be found at: <https://policies.uow.edu.au/document/view-current.php?id=11>

## Honours Policy

This policy sets out the responsibilities of all parties involved in managing students undertaking Honours Programs. The Code can be found at: <https://policies.uow.edu.au/document/view-current.php?id=36>

## The Code of Practice - Work Integrated Learning (Professional Experience)

The Code of Practice - Work Integrated Learning (Professional Experience) sets out what is expected from students, the University and Host Organisations in providing work integrated learning professional experience programs. It applies to professional experience programs that form the whole or part of a subject or course offered at the University. The Code assists in promoting a productive work integrated learning experience for students and in promoting relevant UOW Work Integrated Learning Design Principles.

<https://policies.uow.edu.au/document/view-current.php?id=12>

## Copyright Policy

The purpose of this Policy is to outline responsibilities and procedures regarding the use of third party copyright material, with the objectives of reducing staff and UOW exposure to the risks associated with the use of third party copyright material, assisting staff to make full legal use of the materials at their disposal by clearly identifying responsibilities and promoting copyright compliance. The Policy can be found at:

<https://policies.uow.edu.au/document/view-current.php?id=135>

## Course Progress Policy

The Course Progress Policy establishes the requirements, definitions and procedures to be used in determining the standards of acceptable course progress. The Policy can be found at:

<https://policies.uow.edu.au/document/view-current.php?id=30>

## Examination Rules and Procedures

The UOW rules and procedures outline exam conditions, student conduct in exams, and the procedures for exam management. Further information can be found here: <https://www.uow.edu.au/student/exams/>

## **Ethical Objection by Students to the Use of Animal and Animal Products in Coursework Subjects**

This policy provides a framework for recognition of and responses to students' ethical or religious objection to animal use in coursework subjects at the University of Wollongong. For the purpose of this policy, animal use includes killing of animals in experimental work, dissection of animals that are already dead, use of animal tissues, use of animal-derived products (such as sera). These uses are relevant to teaching and assessment. Further information about this policy can be found here: <https://policies.uow.edu.au/document/view-current.php?id=154>

## **Coursework Rules**

The Coursework Rules (hereafter the Rules) govern the admission, enrolment, progression through, and qualification for a coursework award offered by the University. Further information can be found here: <https://policies.uow.edu.au/document/view-current.php?id=4>

## **Human Research Ethics**

The Human Research Ethics Committee protects the welfare and rights of the participants in research activities. Further information can be found here: <https://www.uow.edu.au/research-and-innovation/researcher-support/ethics/human-ethics/>

## **Inclusive Language Guidelines**

UOW endorses a policy of non-discriminatory language practice in all academic and administrative activities of the University. Further information is available from: <https://policies.uow.edu.au/document/view-current.php?id=239>

## **Intellectual Property Policy**

UOW's IP Intellectual Property Policy provides guidance on the approach taken to Intellectual Property (IP), including its ownership, protection and exploitation. Further information about the management of IP is available at <https://policies.uow.edu.au/document/view-current.php?id=146>

## **Review and Appeal of Academic Decisions Policy**

UOW aims to provide a transparent and consistent process for resolving a student concern about an academic decision that has affected their academic progress, including a mark or grade. Further information is available at: <https://policies.uow.edu.au/document/view-current.php?id=40>

## **Student Academic Consideration Policy**

The purpose of the Student Academic Consideration Policy is to enable student requests for academic consideration for assessable components of a subject to be evaluated in a fair, reasonable, timely and consistent manner throughout the University. **For information on the Policy, eligibility and how to apply see:** <https://www.uow.edu.au/student/admin/academic-consideration/>

## **The Student Charter - Your Rights and Responsibilities**

The Student Charter is based on principles that guide all members of the University and that promote responsible partnerships within and beyond the University community. <https://www.uow.edu.au/student/charter/>

### **Student Assignment of Intellectual Property (IP) Policy**

This policy applies to all Students (under-graduate and post-graduate) of the University of Wollongong (UOW). It may also apply to other persons by agreement. This policy sets out the approach taken by UOW in relation to Student assignment of intellectual property. Further information about this policy can be found here:

<https://policies.uow.edu.au/document/view-current.php?id=146>

### **Student Conduct Rules**

These Rules outline the required conduct of students of UOW, and direct staff and students to University Rules, standards, codes, policies, guidelines, procedures and other requirements which specify acceptable and unacceptable student conduct, and the management of alleged student misconduct.

<https://policies.uow.edu.au/document/view-current.php?id=6>

### **Teaching and Assessment: Assessment and Feedback Policy**

The purpose of this Policy is to set out the University of Wollongong's approach to effective learning, teaching and assessment, including the principles and minimum standards underlying teaching and assessment practice.

The Policy can be found at: <https://policies.uow.edu.au/document/view-current.php?id=38>

### **Teaching and Assessment: Code of Practice - Teaching**

This Code is a key document in implementing the University's Teaching and Assessment Policy and sets out the specific responsibilities of parties affected in relation to learning, teaching and assessment, as well as procedures for teaching staff. The Code can be found at: <https://policies.uow.edu.au/document/view-current.php?id=9>

### **Teaching and Assessment: Subject Delivery Policy**

This Policy sets out specific requirements in relation to the delivery of Subjects. The policy can be found at:

<https://policies.uow.edu.au/document/view-current.php?id=39>

### **Workplace Health & Safety Policy**

The Workplace Health and Safety (WHS) unit at UOW aims to provide structures, system and support to ensure the health, safety and welfare of all at the campus. Further information is available from:

<https://policies.uow.edu.au/document/view-current.php?id=177>