Faculty of Science, Medicine and Health
School of Science

UNIVERSITY OF WOLLONGONG AUSTRALIA

CHEM103: Chemistry For Engineering

Subject Outline
6 credit points

Subject Information

Autumn, 2026, 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.

Contact Hours: 3 x 1 hr Lectures weekly; 4 x 3 hrs Practicals (Weeks 2, 4, 8, 10), and 5 x 2 hrs Workshops (weeks 3, 5, 7, 9, 11).

Please note: the subject timetable for CHEM103, of which your personalised timetable is a small part, is found at: https://www.uow.edu.au/student/timetables/index.html

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 modify teaching locations, teaching delivery, and assessment delivery at short notice in response to unforeseen circumstances such as health or environmental factors.

For up-to-date information please refer to your subject's Moodle site.

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, laboratory and/or field work 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/

Within many of our courses, attending a workplace experience or clinical placement is an exciting part of your course program. Whilst integral to your learning, these health-related placements also let you experience what it's like to work as a professional in real-life workplace settings. More information about requirements for Health Placements is available on our webpage: https://www.uow.edu.au/student/health-placements/

Teaching Staff

Teaching Role	Coordinator
Name	Professor Marc in het Panhuis
Telephone	0418294173
Email	panhuis@uow.edu.au
Room	Building 235 Room 213H
Consultation Times	Please email for appointment

Teaching Role	Tutor
Name	Professor Adam Trevitt
Telephone	+61 2 4221 5545
Email	adamt@uow.edu.au
Room	Building 42 Room 213
Consultation Times	Please email for appointment

Teaching Role	Tutor
Name	Other staff - See Moodle for Details

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.
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.

Copyright

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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 the subject Moodle site for more 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)

UOW is committed to embracing gen AI as a tool to enhance learning and development of important digital and work-readiness skills.

Your subject coordinator will provide specific guidance on the use of gen AI in your assessment tasks via your Subject Outline and/or your subject Moodle site. If gen AI use is permitted, it should be used thoughtfully, critically, and in ways that support your own learning.

Guidance on appropriate use of AI in assessments, including how to acknowledge GenAI can be found on the Using Generative Artificial Intelligence in Assessment website

You are responsible for all work you submit, and ethical use of gen AI is an important part of maintaining academic integrity. Misuse or unauthorised use may breach the Academic Integrity Policy .

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 modify teaching locations, teaching delivery, and assessment delivery at short notice in response to unforeseen circumstances such as health or environmental factors.

For up-to-date information please refer to your subject's Moodle site.

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	02 Mar 2026	The Language of Chemistry	Readings: Chapter 1 pg 46-60; Chapter 2 pg 89-125. *Live lecture Monday 10:30-11:20 (20.2)*
2	09 Mar 2026	Quantity in Chemistry	Readings: Chapter 3 pg 134-162; Chapter 4 pg 201-208. *Live lecture Monday 10:30-11:20 (20.2)*
3	16 Mar 2026	Matter on the Molecular Scale	Readings: Chapter 8 pg 369-400; Chapter 9 pg 412-429 *Live lecture Monday 10:30-11:20 (20.2)* ***Online Quiz #1 Due Sunday***
4	23 Mar 2026	Matter on the Macroscale Part 1	Readings: Chapter 10 pg 472-506; Chapter 11 pg 517-547 *Live lecture Monday 10:30-11:20 (20.2)*
5	30 Mar 2026	Matter on the Macroscale Part 2	Reading: Chapter 12 pg 560-601; Chapter 13 pg 613-644 *Live lecture Monday 10:30-11:20 (20.2)* ***Online Quiz #2 Due Sunday***
6	07 Apr 2026	Chemical Equilbrium	Readings: Chapter 15 pg 715-738 *No live lecture due to Easter Monday holiday.* ***Mid-Session Quiz (completed on Tuesday in the first year lab during laboratory time, 9.30 am-12.30 pm & 1.30-4.30 pm)***
7	13 Apr 2026	Acid-Base Equilibria	Readings: Chapter 16 pg 757-802 *Live lecture Monday 10:30-11:20 (20.2)* **Online Quiz #3 Due Sunday**
	20 Apr 2026	**Mid-Session Recess**	
8	27 Apr 2026	Thermochemistry	Readings: Chapter 5 pg 219-261; Chapter 19 pg 904-912 *No live lecture due to ANZAC day holiday*
9	04 May 2026	Electrochemistry	Readings: Chapter 17 pg 813-852; Chapter 18 pg 864-893 *Live lecture Monday 10:30-11:20 (20.2)* ***Online Quiz #4 Due Sunday***
10	11 May 2026	Chemical Kinetics	Readings: Chapter 14 pg 658-700 *Live lecture Monday 10:30-11:20 (20.2)*

11	18 May 2026	Environmental Chemistry	Readings: Chapter 17 pg 813-852; Chapter 18 pg 864-893 *Live lecture Monday 10:30-11:20 (20.2)*
12	25 May 2026	Industrial Organics	Readings: Chapter 24 pg 1149-1175; Chapter 26 pg 1240-1243 *Live lecture Monday 10:30-11:20 (20.2)* ***Concrete Report Due Sunday***
13	01 Jun 2026	Review of Content	*Live lecture Monday 10:30-11:20 (20.2)*
	08 Jun 2026	**Study Recess**	
	13 Jun 2026	**Examinations**	
	20 Jun 2026	**Examinations**	

* 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 and/or 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 your class times and locations can be found at https://www.uow.edu.au/student/timetables/index.html. Please note that class 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	09 Mar 2026	**Lab 1: Chemical Reactions and Safety in the Laboratory**	*Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.*
3	16 Mar 2026	**Workshop 1: Ionic Compounds and Solutions**	*Complete pre-workshop activity (online via Moodle) and short quiz (in class).*
4	23 Mar 2026	**Lab 2: Iron in Water**	*Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.*
5	30 Mar 2026	**Workshop 2: Intra- and Intermolecular Bonding**	*Complete pre-workshop activity (online via Moodle) and short quiz (in class).*
6	06 Apr 2026	**No Labs or Workshops (mid-session quiz will take place)**	Complete the mid-session quiz on Tuesday in the first year lab during laboratory time (9.30 am-12.30 pm & 1.30 pm-4.30 pm) in Week 6.
7	13 Apr 2026	**Workshop 3: Equilibrium**	*Complete pre-workshop activity (online via Moodle) and short quiz (in class).*
	20 Apr 2026	**Mid-Session Recess**	
8	27 Apr 2026	**Lab 3: Acid-Base Equilibria**	*Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.*
9	04 May 2026	**Workshop 4: Thermochemistry**	*Complete pre-workshop activity (online via Moodle) and short quiz (in class).*
10	11 May 2026	**Lab 4: Redox Chemistry and Corrosion**	*Complete pre-lab activity (online via Moodle) and post-lab (in class) activities.*
11	18 May 2026	**Workshop 5: Electrochemistry**	*Complete pre-workshop activity (online via Moodle) and short quiz (in class).*
12	25 May 2026	**Make-up lab on Monday (TBC). No workshops (concrete report due Sunday)**	*Make-up lab on Monday for students not able to attend Tuesday labs in week 8.* *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.*
	08 Jun 2026	**Study Recess**	
	13 Jun 2026	**Examinations**	
	20 Jun 2026	**Examinations**	

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. Feedback is also used to inform comprehensive reviews of subjects and courses.

The number of practical classes has been increased from three to four to facilitate student learning.

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 for students identified who may be in need of assistance. 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%
	TOTAL MARKS	100%

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

Assessment 1: Lab/Prac/Simulation - Laboratory Reports

Marking Criteria	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.
Length	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. LAB 4: Short, online pre-lab activity (5-10 minutes) and post-lab quiz (no more than 15 minutes) worth 5% in total. **Of the four LAB assessments, the best three results will be counted, contributing a maximum 15% toward the final mark.** **Concrete Report: written report (submitted via Turnitin, no more than 5 pages) contributing a maximum 10% toward the final mark.**
Weighting	25%
Assessment Due	09 Mar 2026 (In your assigned tutorial in Session Week 2) 23 Mar 2026 (In your assigned tutorial in Session Week 4) 27 Apr 2026 (In your assigned tutorial in Session Week 8 or during make-up session on Monday Session Week 12) 11 May 2026 (In your assigned tutorial in Session Week 10) 31 May 2026 (Sunday in Session Week 12)
Type of Collaboration	Individual assessment
Style and format	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.
Generative AI use	Yes

	The use of gen AI for pre-task planning, idea development, and brainstorming purposes is appropriate in this assessment task
Assessment submission	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 task has been set up to be checked by Turnitin, a tool for checking if it has unreferenced content. You can submit your assessment task to Turnitin prior to the due date and Turnitin will give you an originality report. You can then make any changes that may be required and re-submit your final version by the due date.
Assessment return	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.
Detailed information	This is a hurdle assessment. Students are expected to attend all laboratories (100% attendance) and submit a concrete report. Absences may impact ability to accomplish the learning outcomes. There are four (4) laboratory classes across the session. The 25% allocated to laboratory assessment comprises 5% from each laboratory class (including the pre-lab activity, template completion, and post-lab quiz), with the best three laboratory results counted (15% in total), and an additional 10% from the concrete report. Students may miss one (1) laboratory due to illness or other misadventure without incurring an academic penalty. If you have MISSED TWO laboratory classes you must contact the subject coordinator urgently. 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. Students must complete the prelab (available on the CHEM103 Moodle site) BEFORE they attend their laboratory class.

Assessment 2: Assignment - Workshop Quizzes

Marking Criteria	Correct answers to multiple choice questions.
Length	A short (5 minute) quiz completed at the end of each workshop. Approximately 3 multiple choice questions.
Weighting	10%
Assessment Due	16 Mar 2026 (In your assigned tutorial in Session Week 3) 30 Mar 2026 (In your assigned tutorial in Session Week 5) 13 Apr 2026 (In your assigned tutorial in Session Week 7) 04 May 2026 (In your assigned tutorial in Session Week 9) 18 May 2026 (In your assigned tutorial in Session Week 11)
Type of Collaboration	Individual assessment
Style and format	On-campus assessment, open-book.
Generative AI use	Yes The use of gen AI for pre-task planning, idea development, and brainstorming purposes is appropriate in this assessment task
Assessment submission	At the end of each workshop.
Assessment return	Marks available on SOLS within 1 week. Students can request to see their quizzes by contacting the subject coordinator.

Detailed information	Students are expected to attend all workshops (100% attendance). Absences may impact ability to accomplish the learning outcomes. There are five (5) workshop classes across the session. The 10% assessment mark will be **calculated as an average of your best four (4) workshop marks**. 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. **Students should NOT apply for Academic Consideration for a missed tutorial class.** 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. Students must complete the pre-workshop (available on the CHEM103 Moodle site) BEFORE they attend their tutorial.

Assessment 3: Quiz - Mid-session test

Marking Criteria	Correct answers to multiple choice and short answer questions.
Length	80 minute quiz.
Weighting	20%
Assessment Due	07 Apr 2026 (Tuesday in Session Week 6) Final submission time: 11:30 am and 3.30 pm
Type of Collaboration	Individual assessment
Style and format	Combination of multiple choice and short answer questions. Questions may require students to complete calculations, diagrams, graphs, chemical structures and schemes. Completed during Week 6. 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 6.
Generative AI use	The use of Generative AI is not permitted during completion of this assessment task as it is an invigilated quiz. However, generative AI is permitted for pre-task planning, idea development, and brainstorming purposes for this assessment. Recommended uses of generative AI for this task include asking questions about material you do not understand, proofreading your work, or in assisting with preparing study notes.
Assessment submission	Online via Moodle
Assessment return	General feedback will be provided via Moodle. Marks will be available via SOLS.
Detailed information	The Mid-Session Quiz will be completed in Week 6. 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

Marking Criteria	Mark is based on accuracy of answers to multiple choice questions and calculations.
Length	Moodle quiz questions (no more than 10) approximately equivalent to 2 written pages.
Weighting	10%
Assessment Due	22 Mar 2026 (Sunday in Session Week 3) 05 Apr 2026 (Sunday in Session Week 5) 19 Apr 2026 (Sunday in Session Week 7)

	10 May 2026 (Sunday in Session Week 9) Final submission time: 11:59pm
Type of Collaboration	Individual assessment
Style and format	Online Moodle Quiz containing multiple choice questions and calculations.
Generative AI use	Yes The use of gen AI for pre-task planning, idea development, and brainstorming purposes is appropriate in this assessment task.
Assessment submission	Online via Moodle
Assessment return	Marks automatically provided upon submission. Correct answers or worked sample answers will be provided once the quiz is closed.
Detailed information	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.

Assessment 5: Exam - Final Exam

Marking Criteria	Correctness of final answers or answers to multiple choice questions; logical calculations and/or explanations provided; units provided where appropriate.
Length	120 minutes.
Weighting	35%
Assessment Due	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.
Type of Collaboration	Individual assessment
Style and format	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.
Generative AI use	The use of Generative AI is not permitted during completion of this assessment task as it is an invigilated exam. However, generative AI is permitted for pre-task planning, idea development, and brainstorming purposes for this assessment. Recommended uses of generative AI for this task include asking questions about material you do not understand, proofreading your work, or in assisting with preparing study notes.
Detailed information	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) in the laboratory component of the subject. The laboratory component comprises the best three results from the four laboratory classes, together with the concrete report. To meet this requirement, students must complete a minimum of three laboratory quizzes and submit their concrete report.

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).

Failure to meet a hurdle assessment requirement may constitute grounds for the award of a Technical Fail (TF) grade in this subject.

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	Workshop Quizzes	Mid-session test	Moodle Homework	Final Exam
	(25%)	***(10%)***	***(20%)***	***(10%)***	***(35%)***
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.

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	https://www.uow.edu.au/about/services/woolyungah-indigenous-centre/about-us/
Careers advice	https://www.uow.edu.au/student/careers/
Counselling	https://www.uow.edu.au/student/support-services/counselling/
Student Accessibility and Inclusion (SAI)	https://www.uow.edu.au/student/support-services/sai/
Information Tech.	https://www.uow.edu.au/its/index.html?ssSourceSiteId=getstarted
Study Skills	https://www.uow.edu.au/student/support-services/academic-skills/

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 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