

SCI105 Introductory Chemistry

School: School of Science, Technology and Engineering

2026 | Trimester 1

UniSC Sunshine Coast
UniSC Moreton Bay

**BLENDED
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This introductory course provides the chemical concepts essential for science, engineering and education. You study atomic theory, the Periodic Table, chemical bonding and reactions, electrochemistry, fundamentals of chemical thermodynamics including a general introduction to chemical equilibria, reaction kinetics, and the properties of gases, liquids and solutions. The course also explains the properties of acids and bases, the concept of pH, and buffer systems. An introduction to organic chemistry is provided. You work in teams in the laboratory to investigate chemical concepts.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Learning Materials are available online and delivered asynchronously. Learning Materials consist primarily of formative quizzes and interactive screencasts. Other available materials include simulations and on-line demonstrations.	2hrs	Week 1	12 times
Tutorial/Workshop 1 – Tutorials are delivered face-to-face on-campus. Tutorials consist of focus questions and group work.	2hrs	Week 1	6 times
Laboratory 1 – Laboratory work is conducted face-to-face on-campus. Each practical session is thematically linked to theoretical material covered in preceding weeks. Students are expected to work in teams during practical sessions.	3hrs	Week 2	6 times
Seminar – On campus seminars	1hr	Week 1	3 times

1.3. Course Topics

Atomic Theory, Elements, Law of Conservation of Mass, Symbols and Formulae, Measurement and Moles, Solutions and Molarity, Reactions, Acid-Base Equilibria, Atomic Structure and Electronic Configuration, Shapes of Molecules, Intermolecular Forces, Organic Chemistry, Thermochemistry

2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Demonstrate theoretical knowledge of chemical principles, structure, properties, processes and measurements.	Knowledgeable
2 Interpret and formulate chemical reactions and structures.	Creative and critical thinker Empowered
3 Solve mathematical problems using formulae, significant figures and units.	Knowledgeable Empowered
4 Compose a report based on practical work.	Knowledgeable Empowered

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of "pre-requisites, co-requisites and anti-requisites".

5.1. Pre-requisites

Not applicable

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

SCI505

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Early and continuing feedback on your progress in the course is provided using each module's self-assessment questions. The mid-trimester and final exams will be based very heavily on these self-assessment questions.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Examination - not Centrally Scheduled	Individual	25%	60 minutes	Week 6	Online Test (Quiz)
All	2	Quiz/zes	Individual	15%	5-10 minutes each	Throughout teaching period (refer to Format)	Online Test (Quiz)
All	3	Report	Individual	20%	1000-2000 words or as equivalent. See Canvas for details.	Week 12	Online Assignment Submission with plagiarism check
All	4	Examination - Centrally Scheduled	Individual	40%	2 hours	Exam Period	Exam Venue

All - Assessment Task 1: Mid-Trimester Exam

GOAL:	Apply your conceptual knowledge of chemical principles and use your problem-solving abilities.		
PRODUCT:	Examination - not Centrally Scheduled		
AUTHORSHIP STATEMENT:			
FORMAT:	60 minutes, mixed question type exam		
CRITERIA:	No.		Learning Outcome assessed
	1	Apply theoretical knowledge of chemical principles, structure, properties and units of measurement; interpret and evaluate chemical reactions.	1 2 3
GENERIC SKILLS:	Problem solving		

All - Assessment Task 2: Laboratory Quizzes

GOAL:	Demonstrate your theoretical knowledge underpinning laboratory chemistry.		
PRODUCT:	Quiz/zes		
AUTHORSHIP STATEMENT:			
FORMAT:	Six (6) on-line quizzes (10 min. each) based on laboratory work (Weeks 3, 5, 7, 9, 11, 12).		
CRITERIA:	No.		Learning Outcome assessed
	1	Perform calculations and demonstrate knowledge of theories underpinning the laboratory work.	1 2 3
GENERIC SKILLS:	Problem solving		

All - Assessment Task 3: Scientific Report

GOAL:	You use experimental data to develop a scientific report.						
PRODUCT:	Report						
AUTHORSHIP STATEMENT:							
FORMAT:	One report. Further guidance about what is required, is available in the assessment section of Canvas.						
CRITERIA:	<table border="1"><thead><tr><th>No.</th><th></th><th>Learning Outcome assessed</th></tr></thead><tbody><tr><td>1</td><td>Observe, interpret, evaluate and report mathematical calculations and chemical reactions.</td><td>1 2 3 4</td></tr></tbody></table>	No.		Learning Outcome assessed	1	Observe, interpret, evaluate and report mathematical calculations and chemical reactions.	1 2 3 4
No.		Learning Outcome assessed					
1	Observe, interpret, evaluate and report mathematical calculations and chemical reactions.	1 2 3 4					
GENERIC SKILLS:	Communication						

All - Assessment Task 4: Final examination

GOAL:	Demonstrate your theoretical knowledge of chemical principles gained throughout the trimester.												
PRODUCT:	Examination - Centrally Scheduled												
AUTHORSHIP STATEMENT:													
FORMAT:	Multiple choice, short and extended answer exam based on materials from learning materials, tutorials and laboratory activities.												
CRITERIA:	<table border="1"><thead><tr><th>No.</th><th></th><th>Learning Outcome assessed</th></tr></thead><tbody><tr><td>1</td><td>Solve problems using mathematical manipulations and calculations, and report answers to the correct significant figures with correct application of units.</td><td>1 3</td></tr><tr><td>2</td><td>Apply theoretical knowledge of chemical principles, structure, properties, processes (physical, biological and environmental) and measurement</td><td>1 2</td></tr><tr><td>3</td><td>Interpret and evaluate chemical reactions using knowledge of chemical reactivity, stoichiometry, equilibria and thermochemistry.</td><td>1 2</td></tr></tbody></table>	No.		Learning Outcome assessed	1	Solve problems using mathematical manipulations and calculations, and report answers to the correct significant figures with correct application of units.	1 3	2	Apply theoretical knowledge of chemical principles, structure, properties, processes (physical, biological and environmental) and measurement	1 2	3	Interpret and evaluate chemical reactions using knowledge of chemical reactivity, stoichiometry, equilibria and thermochemistry.	1 2
No.		Learning Outcome assessed											
1	Solve problems using mathematical manipulations and calculations, and report answers to the correct significant figures with correct application of units.	1 3											
2	Apply theoretical knowledge of chemical principles, structure, properties, processes (physical, biological and environmental) and measurement	1 2											
3	Interpret and evaluate chemical reactions using knowledge of chemical reactivity, stoichiometry, equilibria and thermochemistry.	1 2											
GENERIC SKILLS:	Communication, Problem solving, Applying technologies												

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
n/a	n/a

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the [Library](#) at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Paul Flowers et al	2019	Chemistry 2e NOTE: This textbook is licensed under a Creative Commons licence and is freely available on-line. Information about how to access the textbook is on Canvas in 'Getting started'	2nd edn	OpenStax, Chemistry. OpenStax CNX. 14 Feb 2019 http://cnx.org/contents/85abf193-2bd2-4908-8563-90b8a7ac8df6@9.524

8.2. Specific requirements

Attendance at the face-to-face laboratory sessions requires you to complete the laboratory induction process and bring your own safety glasses, lab coat and covered footwear.

9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a moderate level of health and safety risk exists. Moderate risks are those associated with laboratory work such as working with chemicals and hazardous substances. You will be required to undertake laboratory induction training and it is also your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

- (a) The final mark is in the percentage range 47% to 49.4%; and
- (b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:

- (a) One day: deduct 5%;
- (b) Two days: deduct 10%;
- (c) Three days: deduct 20%;
- (d) Four days: deduct 40%;
- (e) Five days: deduct 60%;
- (f) Six days: deduct 80%;
- (g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:

- Less than 15 minutes: No penalty
- From 15 minutes to 30 minutes: 20% penalty
- More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- [UniSC Student Central](#)
- [UniSC Adelaide Student Central](#)