COURSE OUTLINE

CHM100 General Chemistry

School: School of Science, Technology and Engineering

2025 | Semester 2

UniSC Sunshine Coast
UniSC Moreton Bay

BLENDED LEARNING

You can do this course without coming onto campus, unless your program has specified a mandatory onsite requirement.

Please go to usc.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 course delves into the theory of general chemistry and its applications. You will gain a strong foundational understanding of chemistry, preparing you for more advanced studies in chemistry or related fields such as environmental and biomedical science. You'll delve into the practical applications of electrochemistry, chemical bonding, thermodynamics, and kinetics, exploring areas from renewable energy to medical advancements. Covered topics include batteries, biomolecules and materials, and environmental and cellular mixtures. Additionally, you will develop laboratory skills typical of professional scientists.

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 screen-casts. Other available materials include simulations and on-line demonstrations.	2hrs	Week 1	13 times
Tutorial/Workshop 1 – Tutorials are delivered face-to-face on-campus. Tutorials consist of focus questions and group work.	2hrs	Week 1	7 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 1	7 times
Seminar – Seminar delivered in Weeks 1, 5 & 13.	1hr	Week 1	3 times

1.3. Course Topics

- Chemical bonding
- Thermodynamics
- Kinetics
- Equilibria
- Solutions and colloids
- Electrochemistry
- Analytical chemistry
- Applications

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 On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Demonstrate and apply chemical principles including equilibria, kinetics, reaction types, and bonding to everyday phenomena.	Knowledgeable Empowered
2	Reason through the application of chemical concepts to solve quantitative and conceptual problems framed in a variety of contexts.	Knowledgeable Empowered
3	Demonstrate proficiency in experimental techniques while working safely to collect and analyse data and effectively communicate experimental outcomes.	Knowledgeable Creative and critical thinker Empowered Engaged

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

Not applicable

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

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.

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	Portfolio	Individual	35%	You maintain a notebook as you work through each practical.Each of the 7 laboratory quizzes are 10 minutes long.	Throughout teaching period (refer to Format)	Online Assignment Submission with plagiarism check
All	2	Written Piece	Individual	25%	500-1000 words	Week 12	Online Assignment Submission with plagiarism check
All	3	Examination - Centrally Scheduled	Individual	40%	2 hours	Exam Period	Online Submission

All - Assessment Task 1: Laboratory Portfolio

GOAL:	To learn how to conduct experiments safely, work as a member of a group, accurately follow instructions, proficiently handle equipment, effectively communicate results, and relate results to underlying theoretical concepts.
PRODUCT:	Portfolio
FORMAT:	For each of the 7 practical sessions, you are to maintain a laboratory notebook. Upon each practical's satisfactory completion, as evidenced by the notebook, a quiz will follow that is based on underlying theoretical concepts.
CRITERIA:	

No.		Learning Outcome assessed
1	Follows both written and verbal instructions, demonstrating safe and competent handling and use of equipment.	3
2	Records results systematically and legibly by using appropriate units and significant figures, and effectively processes and analyses data.	3
3	Effectively communicates results and highlights any anomalies or unexpected results with a possible reason.	3
4	Relates experimental results to theoretical concepts.	3

GENERIC SKILLS:	Communication, Collaboration, Applying technologies

All - Assessment Task 2: Literature Assignment

GOAL:	To enhance your proficiency in deciphering complex scientific terminology from pertinent papers on general chemistry. This task aims to foster your capability to extract detailed information presented in expert language and contextualise it, showcasing overarching concepts in general chemistry.
PRODUCT:	Written Piece
FORMAT:	Written interpretive piece based on a scientific paper in the area of general chemistry.
CRITERIA:	

No.		Learning Outcome assessed
1	Accurately identifies the main findings, hypotheses, and conclusions of the paper.	1
2	Presents complex concepts in a manner that is accessible to first year students using appropriate terminology but also providing explanations or definitions where needed without sacrificing accuracy.	1
3	Highlights the significance of the paper in enhancing understanding of general chemistry in everyday contexts.	1 2

GENERIC SKILLS:	Communication, Applying technologies, Information literacy

All - Assessment Task 3: Final exam

GOAL:	To demonstrate your understanding of chemical principles, articulate core themes, and apply this knowledge in varied contexts.
PRODUCT:	Examination - Centrally Scheduled
FORMAT:	Multiple choice, short and extended answer exam.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstrate a clear grasp of the essential concepts in general chemistry and effectively summarise key themes and ideas.	1 2
2	Apply knowledge to explain and predict chemical phenomena in various contexts.	1 2

GENERIC SKILLS:	Communication, Problem solving

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.

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

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	OpenStax	2019	Chemistry 2e	n/a	XanEdu Publishing Inc

8.2. Specific requirements

None

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. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: 07 5430 1168 or using the SafeZone app. For general enquires contact the SafeUniSC team by phone 07 5456 3864 or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call 07 5430 1226 or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the Learning Advisers web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to Student Hub, email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, AccessAbility Services can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to Student Hub, email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. 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

10.9. 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.

10.10. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au