

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Chemistry 1

Unit ID: SCCHM1001

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 010500

Description of the Unit:

The contents of this unit focus on introductory level general and physical chemistry principles. On completion of SCCHM1001, students will have gained an understanding of atomic structure, how atoms and molecules interact with each other and how this affects their bonding, reactivity, 3D structure and physical properties. A number of important topics such as stoichiometry, intermolecular forces, thermodynamics, kinetics and equilibria, will be covered which will help to prepare students for a deeper exploration of chemistry in further units. The concepts developed within lectures, workshops and tutorials are complemented through an integrated laboratory program where students will develop skills in laboratory techniques, scientific inquiry, and scientific communication.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Recognise and use the language of chemistry and chemical representations
- K2.** Understand electronic structure in atoms and relate this to the construction of the periodic table of elements, and apply it to chemical bonding
- K3.** Understand and explain the theories of thermodynamics, equilibria, and kinetics

Skills:

- S1.** Interpret chemistry at the symbolic, observational and molecular levels
- S2.** Demonstrate ability to safely conduct laboratory experiments
- S3.** Communicate scientific information and chemistry in an appropriate form, including written reports or presentations

Application of knowledge and skills:

- A1.** Apply theoretical knowledge to solve problems, perform calculations, and conduct laboratory exercises
- A2.** Demonstrate ability to work both independently and within teams as a scientist

Unit Content:

The unit focuses on general chemistry principles as well as an introduction to physical chemistry topics of thermodynamics, kinetics and equilibria which will prepare students for both further study in chemistry as well as other scientific disciplines. On completion of SCCHM1001, students will have gained an understanding of:

- Atomic structure, the periodic table, how atoms and molecules interact with each other and how this affects their, reactivity, 3D structure and physical properties
- Bonding
- Stoichiometry
- Intermolecular forces and states of matter
- Thermodynamics, kinetics and equilibria

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be*

evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams. 	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> • Creating a collegial environment • Showing self-awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative 	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving. 	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities. 	Not applicable	Not applicable

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life. 	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, A1	Apply knowledge and understanding of the unit content to answer questions and problems	Final Examination/Test	40-60%
K1, K2, K3, S1, S2, S3, A1, A2	Conduct practical laboratory skills and communicate results	Laboratory work and reports / presentations.	20-30%
K1, K2, K3, S1, A1	Apply chemical concepts to simple problems	On-line quizzes	20-30%
S2	Attendance and participation in laboratory sessions to complete assessments of practical skills	≥80% engagement (and where required attendance) with laboratory sessions	Satisfactory/Unsatisfactory

Adopted Reference Style:

APA ()

 Refer to the [library website](#) for more information

 Fed Cite - [referencing tool](#)