



UNSW
College

Diploma of Science

Program Structure & Course Outlines

Program Structure

- The Diploma of Science comprises 8 courses taken over three terms of full-time study. Students must complete 48 Units of Credit (UoC). Each course is 6 UoC.
- DPCA1001, DPCA1002 and DPCA1003 are all one course delivered over 1- 3 terms.
- Pre-requisites must be satisfied before selecting any course within the program.
- A core course must be satisfactorily completed to meet the requirements of the program.
- An elective course must be completed to satisfactorily complete the program and, if relevant, specialisation.
- Students will study a mix of core courses and prescribed electives depending on your specialisation.
- Below is a sample of two different Diploma of Engineering Programs.

Diploma of Science Sample Program 1

Courses in biological and medical science specialisations

Course Code	Course Title	UoC	Suggested Enrolment Term	Pre-requisites/ Co-requisites
DPCA1001	Communication and Academic Literacy 1	4	1	
DPMA1013	Mathematics 1A	6	1	
DPCA1002	Communication and Academic Literacy 2	1	2	DPCA1001 Communication and Academic Literacy 1 (<i>Pre-requisite</i>)
DPMA1014	Mathematics 1B	6	2	DPMA1013 Mathematics A (<i>Pre-requisite</i>)
DPCH1031	Chemistry A: Atoms, Molecules and Energy	6	2	
DPCA1003	Communication and Academic Literacy 3	1	3	DPCA1002 Communication and Academic Literacy 1 (<i>Pre-requisite</i>)
DPCH1032	Chemistry B: Elements, Compounds and Life	6	3	DPCH1031 Chemistry A: Atoms, Molecules and Energy (<i>Pre-requisite</i>)
DPBI1041	Evolutionary and Functional Biology	6	1 or 2 or 3	
DPBA1051	Molecules, Cells and Genes	6	1 or 2 or 3	
DPBA1052	Applied Biomolecular Sciences	6	1 or 2 or 3	



Diploma of Science Sample Program 2

Courses in physical, chemical and mathematical science specialisations

Course Code	Course Title	UoC	Suggested Enrolment Term	Pre-requisites/ Co-requisites
DPCA1001	Communication and Academic Literacy 1	4	1	
DPMA1013	Mathematics 1A	6	1	
DPCA1002	Communication and Academic Literacy 2	1	2	DPCA1001 Communication and Academic Literacy 1 (<i>Pre-requisite</i>)
DPMA1014	Mathematics 1B	6	2	DPMA1013 Mathematics A (<i>Pre-requisite</i>)
DPCH1031	Chemistry A: Atoms, Molecules and Energy	6	2	
DPCA1003	Communication and Academic Literacy 3	1	3	DPCA1002 Communication and Academic Literacy 1 (<i>Pre-requisite</i>)
DPCH1032	Chemistry B: Elements, Compounds and Life	6	3	DPCH1031 Chemistry A: Atoms, Molecules and Energy (<i>Pre-requisite</i>)
DPPH1021	Physics 1A	6	1	DPMA1013 Mathematics 1A (<i>Co-requisite</i>)
DPPH1023	Higher Physics 1A			
DPPH1022	Physics 1B	6	2	DPPH1023 Higher Physics 1A (<i>Pre-requisite</i>)
DPPH1024	Higher Physics 1B			OR Pass rate \geq 60% in DPPH1021 Physics 1A (<i>Pre-requisite</i>)
DPMS1061	Design in Application of Materials in Science and Engineering	6	3	



Course Outlines

Course Outline Quick Links

[DPMA1013 Mathematics 1A](#)

[DPMA1014 Mathematics 1B](#)

[DPCH1031 Chemistry 1A](#)

[DPCH1032 Chemistry 1B](#)

[DPPH1021 Physics 1A](#)

[DPPH1022 Physics 1B](#)

[DPPH1023 Higher Physics 1A](#)

[DPPH1024 Higher Physics 1B](#)

[DPMS1061 Design and Application of Materials in Science and Engineering](#)

[DPBI1041 Evolutionary and Functional Biology](#)

[DPBA1051 Molecules, Cells and Genes](#)

[DPBA1052 Applied Biomolecular Sciences](#)

[DPCA1001-3 Communication and Academic Literacy](#)





DPMA1013 Mathematics 1A

Course Description

This course will provide you with a good working knowledge of Calculus and Linear Algebra and will show you how these topics can be applied in interdisciplinary contexts. You will see analytical thinking and problem-solving demonstrated in lectures, and you will have an opportunity to develop your analytical thinking and problem-solving skills in tutorial classes. This course will enhance your ability to solve problems using logical arguments and techniques, which are generic skills that can be applied in multidisciplinary work. The course will also engage you in independent and reflective learning through your homework problems and the Maple computing package. You are encouraged to develop your communication skills through active participation in tutorials, and by writing clear, logical arguments when solving problems.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: State definitions as specified in the syllabus.

CL02: State and prove appropriate theorems.

CL03: Explain how a theorem relates to specific examples.

CL04: Apply the concepts and techniques of the syllabus to solve appropriate problems.

CL05: Prove specific and general results given specified assumptions.

CL06: Use mathematical and other terminology appropriately to communicate information and understanding.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
7 hours (2 x 2hrs lectures, 2 x 1.5 hrs tutorials)	7 hours	14 hours

Topics included in the Course

Algebra

- 1 Introduction to Vectors
- 2 Vector Geometry
- 3 Complex Numbers
- 4 Linear Equations and Matrices
- 5 Matrices

Calculus

- 1 Sets, inequalities and functions
- 2 Limits
- 3 Properties of continuous functions
- 4 Differentiable functions
- 5 The mean value theorem and applications
- 6 Inverse functions
- 7 Curve sketching
- 8 Integration
- 9 Logarithms and exponentials
- 10 Hyperbolic functions

Computing

- 1 Getting Started – Maple
- 2 The Basics- Arithmetic operations; Brackets; Constants and variables
- 3 Functions
- 4 Basic Calculus
- 5 Collections of Expressions
- 6 Complex Numbers and Equations
- 7 Plotting
- 8 Linear Algebra



Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
<p>1. Class tests</p> <p>Two Algebra and two Calculus tests, each covering 2-3 topics and of 35 mins duration.</p>	Year 1, Term 1, Weeks 5, 6, 10, 11	24%	CLO1-6
<p>2. Mobius online tutorials</p> <p>Each covers 4 sets of questions on Algebra / Calculus and one question on Maple, an unlimited number of attempts within 2 weeks, best 8 scores of the 11 quizzes count.</p>	Year 1, Term 1, Weekly	12%	CLO1-6
<p>3. Maple laboratory test</p> <p>Testing knowledge/use of Maple, 40 min.</p>	Year 1, Term 1, Week 12	4%	CLO4, CLO6
<p>4. Assignment</p> <p>Testing Math's writing skills through detailed explanations to 3 different questions, typeset using Equation Editor.</p>	Year 1, Term 1, released in Week 6 and due in Week 10	10%	CLO1-6
<p>5. Final Exam</p> <p>Duration of 2.5h, split into an Algebra and Calculus part.</p>	Year 1, Term 1, Exam Period	50%	CLO1-6





DPMA1014 Mathematics 1B

Course Description

This course will provide you with a good working knowledge of Calculus and Linear Algebra, and it will show you how these topics can be applied in interdisciplinary contexts. The illustrative examples used in lectures and the problem-based tutorial classes will help you to further develop and improve your analytical thinking and problem-solving skills. Based on logical arguments and specific techniques, these problem-solving skills are generic and can be applied in multidisciplinary work. The course will also encourage you to develop your communication skills through active participation in tutorials, and by writing clear, logical arguments when solving problems.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: State definitions as specified in the syllabus.

CL02: State and prove appropriate theorems.

CL03: Explain how a theorem relates to specific examples.

CL04: Apply the concepts and techniques of the syllabus to solve appropriate problems.

CL05: Prove specific and general results given specified assumptions.

CL06: Use mathematical and other terminology appropriately to communicate information and understanding.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
7 hours (2 x 2hrs lectures, 2x 1.5 hrs tutorials)	7 hours	14 hours

Topics included in the Course

Algebra

- 1 Vector spaces
- 2 Linear Transformations
- 3 Eigenvalues and Eigenvectors
- 4 Probability and Statistics

Calculus

- 1 Functions of several variables
- 2 Integration techniques
- 3 Ordinary differential equations
- 4 Taylor series
- 5 Application of integration

Computing

- 1 Application of integration
- 2 Further calculus
- 3 Further linear algebra
- 4 Geometry
- 5 Programming in Maple

Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
1. Class tests Two Algebra and two Calculus tests, each covering 1-2 topics and of 35 mins duration.	Year 1, Term 2, Weeks 5, 6, 10, 11	24%	CLO1-6



Assessment Tasks

<p>2. Mobius online tutorials</p> <p>Each covers 4 questions on Algebra/Calculus and one question on Maple, an unlimited number of attempts within 2 weeks, best 8 scores of the 12 quizzes count.</p>	<p>Year 1, Term 2, Weekly</p>	<p>12%</p>	<p>CLO1-6</p>
<p>3. Maple laboratory test</p> <p>Testing knowledge/use of Maple, 40 min.</p>	<p>Year 1, Term 2, Week 12</p>	<p>4%</p>	<p>CLO4, CLO6</p>
<p>4. Assignment</p> <p>Testing Math's writing skills through detailed explanations to 3 different questions, typeset using Equation Editor.</p>	<p>Year 1, Term 2, released in Week 6 and due in Week 10</p>	<p>10%</p>	<p>CLO1-6</p>
<p>5. Final Exam</p> <p>Duration of 2.5h, split into an Algebra and Calculus part.</p>	<p>Year 1, Term 2, Exam Period</p>	<p>50%</p>	<p>CLO1-6</p>





DPCH1031 Chemistry 1A

Course Description

This course builds on elementary knowledge of chemistry (equivalent to HSC chemistry, or Foundations Chemistry at UNSW Global) to explore the quantum mechanical structure of atoms leading to an understanding of the periodic trends in the properties of the elements. This knowledge is applied to understanding chemical bonding and intermolecular forces which together are responsible for determining the properties of materials. General principles of chemical equilibrium are developed and applied to chemical reactions involving acids and bases. The applications of the laws of Thermodynamics to chemical processes are described and ultimately linked to chemical equilibrium and chemical reactions involving electron transfer. The course concludes with an overview of the application of the principles to the production and storage of energy.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Apply the language of chemistry to the naming and formulae of chemical substances and chemical equations.

CL02: Perform calculations to quantify substances relating to chemical reactions

CL03: Apply theory and laws to predict the properties and behaviour of chemical substances.

CL04: Demonstrate proficiency in defined core chemistry laboratory skills by safely investigating chemical reactions in first-hand scientific investigations.

CL05: Gather, analyse and interpret data from first-hand scientific investigations to draw valid conclusions.

No. timetabled hours per week	No. personal study hours	Total workload hours per week
9 hours (3 x 1hr lectures per week, 2x 1.5 hrs tutorials per week, 1 x 1-hour consultation class, 1 x 3hrs lab in 8 weeks of term)	9 hours	16 hours

Topics included in the Course

Unit 1: Atomic Spectroscopy

Unit 2: Quantum Mechanics

Unit 3: Electron Configurations

Unit 4: Periodicity

Unit 5: Bonding and Lewis Structures

Unit 6: Shapes of Molecules

Unit 7: Valence bond theory

Unit 8: Intermolecular Forces

Unit 9: States of Matter

Unit 10: Ideal and Real Gases

Unit 11: Raoult's Law

Unit 12: Equilibrium

Unit 13: Pressure Equilibria

Unit 14: Acids and Bases

Unit 15: Acid Ionisation Constant and Buffers

Unit 16: Titration

Unit 17: Energy, Heat Capacity and Calorimetry

Unit 18: Enthalpy

Unit 19: Entropy and Free Energy

Unit 20: Redox Reactions

Unit 21: Galvanic Cells

Unit 22: Electrochemical Thermodynamics

Unit 23: Batteries and Electrolysis



Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
<p>1. Online weekly quiz x 8</p> <p>Each quiz covers a limited range of topics.</p> <p>Each quiz consists of 10 multiple choice questions randomly selected from a question bank.</p> <p>Some questions are conceptual some are calculation based.</p> <p>Unlimited attempts are permitted per quiz.</p> <p>100% required to pass.</p>	Weeks 1 - 11 of the term	<p>0%</p> <p>Formative assessment is required for students to gain access to validation tests</p>	CLO1-3
<p>2. Online Validation test x 3</p> <p>Students can attempt one attempt per week.</p> <p>Each quiz covers a limited range of topics.</p> <p>Each quiz consists of 20 multiple choice questions randomly selected from a question bank.</p> <p>Some questions are conceptual some are calculation based.</p> <p>Students are given 45 minutes to complete the quiz.</p> <p>90% required to pass.</p>	Weeks 2 - 12 of the term	40%	CLO1-3



<p>3. Laboratory reports</p> <p>Students are required to perform experiments, collect data and then perform calculations, interpret data and answer questions.</p> <p>Students are required to submit a written report through an online portal.</p> <p>Students must attend and complete the reports for at least 6 out of 8 Laboratory classes.</p> <p>Students are also required to successfully demonstrate that they can perform the key laboratory skills: weigh compounds by difference, use a volumetric flask, use a pipette, correctly set up and perform a titration, use a steam bath and ice bath and correctly graph data.</p>	<p>During the lab weeks (8 per term)</p>	<p>20%</p>	<p>CLO4-5</p>
<p>4. Final Exam</p> <p>The final exam is 2 hours in duration.</p> <p>It consists of 20% multiple choice questions, 35% short answer questions and 45% extended response questions.</p>	<p>Exam period of the relevant term</p>	<p>40%</p>	<p>CLO1-3</p>





DPCH1032 Chemistry 1B

Course Description

This course builds on elementary knowledge of chemistry (equivalent to HSC chemistry, or Foundations Chemistry at UNSW Global) to explore the quantum mechanical structure of atoms leading to an understanding of the periodic trends in the properties of the elements. This knowledge is applied to understanding chemical bonding and intermolecular forces which together are responsible for determining the properties of materials. General principles of chemical equilibrium are developed and applied to chemical reactions involving acids and bases. The applications of the laws of Thermodynamics to chemical processes are described and ultimately linked to chemical equilibrium and chemical reactions involving electron transfer. The course concludes with an overview of the application of the principles to the production and storage of energy.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Apply the language of chemistry to the naming and formulae of chemical substances and chemical equations.

CL02: Perform calculations to quantify substances relating to chemical reactions.

CL03: Apply theory and laws to predict the properties and behaviour of chemical substances.

CL04: Demonstrate proficiency in defined core chemistry laboratory skills by safely investigating chemical reactions in first-hand scientific investigations.

CL05: Gather, analyse and interpret data from first-hand scientific investigations to draw valid conclusions.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
9 hours (3 x 1hr lectures per week, 2x 1.5 hrs tutorials per week, 1 x 1 hr consultation class, 1 x 3hrs lab in 8 weeks of term)	9 hours	18 hours

Topics included in the Course

Unit 1: Transition metal chemistry

Unit 2: Coordination complexes

Unit 3: Crystal field theory

Unit 4: Isomerism

Unit 5: Stereoisomerism (E/Z and R/S)

Unit 6: Isomeric relationships and properties

Unit 7: Elemental analysis and UV-vis spectroscopy

Unit 8: Mass spectrometry

Unit 9: IR spectroscopy

Unit 10: NMR spectroscopy

Unit 11: Chemical Kinetics and rate laws

Unit 12: Elementary reactions and reaction mechanisms

Unit 13: Collision theory

Unit 14: Electrophiles, Nucleophiles and Organic reaction mechanisms

Unit 15: Nucleophilic addition to carbonyls

Unit 16: Nucleophilic substitution reaction (S_N1 and S_N2)

Unit 17: Electrophilic addition to alkenes

Unit 18: Electrophilic aromatic substitution

Unit 19: Multi-step organic synthesis

Unit 20: Molecular Machines



Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
<p>1. Online weekly quiz x 8</p> <p>Each quiz covers a limited range of topics.</p> <p>Each quiz consists of 10 multiple choice questions randomly selected from a question bank.</p> <p>Some questions are conceptual some are calculation based.</p> <p>Unlimited attempts are permitted per quiz.</p> <p>100% required to pass.</p>	Weeks 1 - 11 of the term	0% (formative assessment is required for students to gain access to validation tests)	CLO1-3
<p>2. Online validation test x 3</p> <p>Students can attempt one attempt per week.</p> <p>Each quiz covers a limited range of topics.</p> <p>Each quiz consists of 20 multiple choice questions randomly selected from a question bank.</p> <p>Some questions are conceptual some are calculation based.</p> <p>Students are given 45 minutes to complete the quiz.</p> <p>90% required to pass.</p>	Weeks 2 - 12 of the term	40%	CLO1-3



<p>3. Laboratory reports</p> <p>Students are required to perform experiments, collect data and then perform calculations, interpret data and answer questions.</p> <p>Students are required to submit a written report through an online portal.</p> <p>Students must attend and complete the reports for at least 6 out of 8 Laboratory classes.</p> <p>Students are also required to successfully demonstrate that they can perform the key laboratory skills: weigh compounds by difference, use a volumetric flask, use a pipette, correctly set up and perform a titration, use a steam bath and ice bath and correctly graph data.</p>	<p>During the lab weeks (8 per term)</p>	<p>20%</p>	<p>CLO4-5</p>
<p>4. Final Exam</p> <p>The final exam is 2 hours in duration.</p> <p>It consists of 20% multiple choice questions, 35% short answer questions and 45% extended response questions.</p>	<p>Exam period of relevant term</p>	<p>40%</p>	<p>CLO1-3</p>





DPPH1021 Physics 1A

Course Description

This course builds on elementary knowledge of physics (Year 12 physics or equivalent). It introduces mechanics, thermal physics, waves, and the techniques of analysis and problem-solving in the physical world. Students will develop their ability to use mathematics and fundamental physical concepts to solve problems related to the world around them. It is a calculus-based course where concepts and principles are learned in context, by example, and then developed through practice solving problems. Throughout the course, the skills of problem-solving are refined by learning when and how to apply different principles of physics, mathematics and other relevant tools. Students are encouraged to develop their communication skills through active participation in tutorials and laboratory exercises. This course is examined at two levels, with DPPH1021 being the lower and DPPH1023 being the higher of the two levels.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Analyse motion in two dimensions using vectors. Apply Newton's laws of motion to objects undergoing uniform translational or rotational acceleration.

CL02: Analyse problems involving friction and the forces and deformations described by Hooke's law.

CL03: Explain the difference between kinetic and potential energy and use the law of conservation of energy and the work-energy theorem to solve mechanics problems.

CL04: Apply the conservation laws of momentum and energy to solve mechanics problems, including problems involving collisions, extended objects and their centers of mass.

CL05: Apply the law of universal gravitation in combination with other laws covered in this course to describe, predict and explain the motion of satellites, planets, stars and galaxies.

CL06: Explain how energy conservation is related to the first law of thermodynamics. Apply the first law to solve problems.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL07: Recognise and solve problems relating to different thermodynamic processes, including adiabatic, isothermal, isobaric and isovolumetric processes. For cyclic processes, calculate changes in internal energy, work done and heat transferred in cycles.

CL08: Describe different heat transfer mechanisms and calculate the amount of heat transferred in different processes.

CL09: Identify physical systems that can be understood using models of simple harmonic oscillation and write down equations to describe this motion.

CL010: Write down and solve equations describing wave motion, and use these equations to explain physical phenomena such as (but not limited to) standing waves and interference.

CL011: Recognise that physics is an experimental science, plan and conduct experiments and analyse the outcomes, and include reliable estimates of uncertainties in measurements.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
8 hours (3 x 1hr lectures, 2 x 1 hr tutorials, 1 hr workshop, 2 hrs Lab (8 labs total))	8 hours	16 hours

Topics included in the Course

Mechanics

- 1 Motion along a straight
- 2 Vectors
- 3 Motion in two and three dimensions
- 4 Force and motion
- 5 Work and energy
- 6 Centre of mass and linear
- 7 Rotation and torque
- 8 Gravitation



Thermal Physics

- 1 Temperature
- 2 Kinetic theory of gases
- 3 Heat and the first law of

Waves

- 1 Oscillations
- 2 Wave motion
- 3 Sound waves

Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
1. Term Test 1 Covers all of the Mechanics.	Week 8	10%	CLO1-11
2. Term Test 2 Covers all of Thermal Physics and Oscillations.	Week 13	10%	CLO1-11
3. Online Quizzes 6 quizzes each with an unlimited number of attempts, and the best score counts.	Starting week 2; approximately every 2 weeks	10%	CLO1-11
4. Laboratory Work 8 laboratory exercises.	Starting week 3; approximately every week.	20%	CLO11
5. Final Exam	Exam period of the relevant term	50%	CLO1-11





DPPH1022 Physics 1B

Course Description

This course builds on the physics learnt in Physics/Higher Physics 1A to further develop an understanding of the mathematical description of the laws of nature. It gives an introduction to electromagnetism, physical optics, quantum physics, and the techniques of analysis and problem-solving in the physical world. Students will develop their ability to use mathematics and fundamental physical concepts to solve problems related to the world around them. It is a calculus-based course where concepts and principles are learned in context, by example, and then developed through practice solving problems. Throughout the course, the skills of problem-solving are refined by learning when and how to apply different principles of physics, mathematics and other relevant tools. Students are encouraged to develop their communication skills through active participation in tutorials and laboratory exercises. This course is examined at two levels, with DPPH1022 being the lower and DPPH1024 being the higher of the two levels.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Use Coulomb's law and Gauss's law to calculate electric fields for configurations of charges, use these electric fields to calculate electric potentials. Compare and contrast electric fields to gravitational fields covered in Physics/Higher Physics 1A.

CL02: Be able to state the definition of capacitance and use this definition with equations for electric field and voltages to calculate the capacitance of different geometries.

CL03: Calculate the electrostatic and magnetic fields produced by moving charges in a variety of configurations using the Laws of Biot-Savart and Ampère. Relate electric and magnetic fields using Faraday's law; use this to calculate induced currents and voltages.

CL04: Use equations to describe and explain the properties of electromagnetic waves (such as wavelength, frequency, intensity, power and radiation pressure) and relate these to electric and magnetic fields and the speed of light.

CL05: Use equations and diagrams to solve advanced problems about electromagnetic waves related to polarisation, interference and diffraction.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL06: Discuss and explain (qualitatively and quantitatively) the key observations and events that led to the development of quantum mechanics.

CL07: Relate emission and absorption spectra to the energy change of electrons between states in an atom, calculate the energy levels of electrons in Hydrogen-like atoms, and relate this to quantum mechanical laws.

CL08: Describe and explain the physics relating to modern devices and technologies including semiconductors, transistors, LEDs and solar cells.

CL09: Recognise that physics is an experimental science, plan and conduct experiments and analyse the outcomes, and include reliable estimates of uncertainties in measurements.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
8 hours (3 x 1hr lectures, 2 x 1 hr tutorials, 1 hr workshop, 2 hrs Lab (8 labs total))	8 hours	16 hours

Topics included in the Course

Electricity and Magnetism

- 1 Coulomb's law
- 2 Electric fields
- 3 Gauss's law
- 4 Electric potential
- 5 Capacitance
- 6 Magnetic fields
- 7 Magnetic fields due to currents
- 8 Induction and inductance

Physical Optics

- 1 Electromagnetic waves
- 2 Interference
- 3 Diffractions



Introductory Quantum Physics and Solid State Physics

- 1 Photons and matter waves
- 2 Conduction and electricity in solids

Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
1. Term Test 1 Covers all of Electricity and Magnetism.	Week 13	10%	CLO1-9
2. Term Test 2 Covers all of Physical Optics Introductory Quantum Physics and Solid State Physics.	Starting week 2; approximately every 2 weeks	10%	CLO1-9
3. Online Quizzes 6 quizzes each with an unlimited number of attempts, and the best score counts.	Starting week 3; approximately every week.	20%	CLO9
4. Laboratory Practical's 8 laboratory exercises.	Exam period of the relevant term	50%	CLO1-9
5. Final Exam	Week 13	10%	CLO1-9





DPPH1023 Higher Physics 1A

Course Description

This course builds on elementary knowledge of physics (Year 12 physics or equivalent). It gives an introduction to mechanics, thermal physics, waves, and the techniques of analysis and problem-solving in the physical world. Students will develop their ability to use mathematics and fundamental physical concepts to solve problems related to the world around them. It is a calculus-based course where concepts and principles are learned in context, by example, and then developed through practice solving problems. Throughout the course, the skills of problem-solving are refined by learning when and how to apply different principles of physics, mathematics and other relevant tools. Students are encouraged to develop their communication skills through active participation in tutorials and laboratory exercises. This course is examined at two levels, with DPPH1021 being the lower and DPPH1023 being the higher of the two levels.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Analyse motion in two dimensions using vectors. Apply Newton's laws of motion to objects undergoing uniform translational or rotational acceleration.

CL02: Analyse problems involving friction and the forces and deformations described by Hooke's law.

CL03: Explain the difference between kinetic and potential energy and use the law of conservation of energy and the work-energy theorem to solve mechanics problems.

CL04: Apply the conservation laws of momentum and energy to solve mechanics problems, including problems involving collisions, extended objects and their centers of mass.

CL05: Apply the law of universal gravitation in combination with other laws covered in this course to describe, predict and explain the motion of satellites, planets, stars and galaxies.

CL06: Explain how energy conservation is related to the first law of thermodynamics. Apply the first law to solve problems.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL07: Recognise and solve problems relating to different thermodynamic processes, including adiabatic, isothermal, isobaric and isovolumetric processes. For cyclic processes, calculate changes in internal energy, work done and heat transferred in cycles.

CL08: Describe different heat transfer mechanisms and calculate the amount of heat transferred in different processes.

CL09: Identify physical systems that can be understood using models of simple harmonic oscillation and write down equations to describe this motion.

CL010: Write down and solve equations describing wave motion, and use these equations to explain physical phenomena such as (but not limited to) standing waves and interference.

CL011: Recognise that physics is an experimental science, plan and conduct experiments and analyse the outcomes, and include reliable estimates of uncertainties in measurements.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
8 hours (3 x 1hr lectures, 2 x 1 hr tutorials, 1 hr workshop, 2 hrs Lab (8 labs total))	8 hours	16 hours

Topics included in the Course

Mechanics

- 1 Motion along a straight
- 2 Vectors
- 3 Motion in two and three dimensions
- 4 Force and motion
- 5 Work and energy
- 6 Centre of mass and linear
- 7 Rotation and torque
- 8 Gravitation



Thermal Physics

- 1 Temperature
- 2 Kinetic theory of gases
- 3 Heat and the first law of

Waves

- 1 Oscillations
- 2 Wave motion
- 3 Sound waves

Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
1. Term Test 1 Covers all of Mechanics.	Week 8	10%	CLO1-11
2. Term Test 2 Covers all of Thermal Physics and Oscillations.	Week 13	10%	CLO1-11
3. Online Quizzes 6 quizzes each with an unlimited number of attempts, and the best score counts.	Starting week 2; approximately every 2 weeks	10%	CLO1-11
4. Laboratory Practical's 8 laboratory exercises.	Starting week 3; approximately every week.	20%	CLO11
5. Final Exam	Exam period of the relevant term	50%	CLO1-11





DPPH1024 Higher Physics 1B

Course Description

This course builds on the physics learnt in Physics/Higher Physics 1A to further develop an understanding of the mathematical description of the laws of nature. It gives an introduction to electromagnetism, physical optics, quantum physics, and the techniques of analysis and problem-solving in the physical world. Students will develop their ability to use mathematics and fundamental physical concepts to solve problems related to the world around them. It is a calculus-based course where concepts and principles are learned in context, by example, and then developed through practice solving problems. Throughout the course, the skills of problem-solving are refined by learning when and how to apply different principles of physics, mathematics and other relevant tools. Students are encouraged to develop their communication skills through active participation in tutorials and laboratory exercises. This course is examined at two levels, with DPPH1022 being the lower and DPPH1024 being the higher of the two levels.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Use Coulomb's law and Gauss's law to calculate electric fields for configurations of charges, use these electric fields to calculate electric potentials. Compare and contrast electric fields to gravitational fields covered in Physics/Higher Physics 1A.

CL02: Be able to state the definition of capacitance and use this definition with equations for electric field and voltages to calculate the capacitance of different geometries.

CL03: Calculate the electrostatic and magnetic fields produced by moving charges in a variety of configurations using the Laws of Biot-Savart and Ampère. Relate electric and magnetic fields using Faraday's law; use this to calculate induced currents and voltages.

CL04: Use equations to describe and explain the properties of electromagnetic waves (such as wavelength, frequency, intensity, power and radiation pressure) and relate these to electric and magnetic fields and the speed of light.

CL05: Use equations and diagrams to solve advanced problems about electromagnetic waves related to polarisation, interference and diffraction.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL06: Discuss and explain (qualitatively and quantitatively) the key observations and events that led to the development of quantum mechanics.

CL07: Relate emission and absorption spectra to the energy change of electrons between states in an atom, calculate the energy levels of electrons in Hydrogen-like atoms, and relate this to quantum mechanical laws.

CL08: Describe and explain the physics relating to modern devices and technologies including semiconductors, transistors, LEDs and solar cells.

CL09: Recognise that physics is an experimental science, plan and conduct experiments and analyse the outcomes, and include reliable estimates of uncertainties in measurements.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
8 hours (3 x 1hr lectures, 2 x 1 hr tutorials, 1 hr workshop, 2 hrs Lab (8 labs total))	8 hours	16 hours

Topics included in the Course

Electricity and Magnetism

- 1 Coulomb's law
- 2 Electric fields
- 3 Gauss's law
- 4 Electric potential
- 5 Capacitance
- 6 Magnetic fields
- 7 Magnetic fields due to currents
- 8 Induction and inductance



Physical Optics

- 1 Electromagnetic waves
- 2 Interference
- 3 Diffractions

Introductory Quantum Physics and Solid State Physics

- 1 Photons and matter waves
- 2 Conduction and electricity in solids

Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
1. Term Test 1 Covers all of Electricity and Magnetism.	Week 8	10%	CL01-9
2. Term Test 2 Covers all of Physical Optics Introductory Quantum Physics and Solid State Physics.	Week 13	10%	CL01-9
3. Online Quizzes 6 quizzes each with an unlimited number of attempts, and the best score counts.	Starting week 2; approximately every 2 weeks	10%	CL01-9
4. Laboratory Practical's 8 laboratory exercises.	Starting week 3; approximately every week.	20%	CLO9
5. Final Exam	Exam period of the relevant term	50%	CL01-9





DPMS1061 Design and Application of Materials in Science and Engineering

Course Description

The design and selection of materials for applications in industry and society require an in-depth knowledge of the structures, properties and availability of materials. This course will introduce students to the microstructures and structure-property relationships of the main types of engineering materials (metals, ceramics, polymers and composites), micro-mechanisms of elastic and plastic deformation, fracture mechanisms for ductile, brittle, creep and fatigue modes of failure in service, phase equilibria of alloys, and the properties and applications to commercial engineering materials. It is a course suitable for students pursuing further studies in Materials Science and Engineering as well as some other related engineering disciplines including Mechanical/Mechatronics and Civil Engineering.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Describe basic property-structure relationships in materials.

CL02: Explain the different types of deformation that can occur in materials under applied loads and relate the deformation to the atomic structure.

CL03: Explain different ways that materials may fail under applied loads and the circumstances in which each failure mechanism is most likely.

CL04: Understand the context of materials science and engineering in design and applications within society.

CL05: Communicate the above using a range of media.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
6 hours (3 hrs lecture + 2 x 1 hr tutorials + 1 hr consultation) + 3 hours of labs in the term	6 hours	12 hours

Topics included in the Course

Unit 1: Atomic bonding and atomic packing

Unit 2: Mechanical behaviour (Elastic and plastic deformation)

Unit 3: Dislocations, strengthening mechanisms and diffusion

Unit 4: Professional ethics and fast fracture

Unit 5: Atomic structure of metals and phase diagrams

Unit 6: Phase transformations and non-ferrous alloys

Unit 7: Creep and fatigue

Unit 8: Steels and iron-carbide phase diagrams

Unit 9: Polymers and ceramics

Unit 10: Composites and Nanomaterials

Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
1. 11 Online Moodle Quizzes Weekly one-hour timed quizzes with one attempt allowed.	Weekly in the term	12%	CLO1-4



Assessment Tasks

<p>2. 3 Lab reports Lab experiments and 6 pages report submission.</p>	<p>Report submissions in weeks 5, 9 and 10</p>	<p>9%</p>	<p>CLO1-3</p>
<p>3. In Class Quizzes Participation and in-class quizzes.</p>	<p>Weekly in the term</p>	<p>15%</p>	<p>CLO1-5</p>
<p>4. Professional experience Conference report/conference presentation and weekly activity journal.</p>	<p>Activity journal weekly Conf. report in week 11 Conf. presentation in week 12</p>	<p>19%</p>	<p>CLO4</p>
<p>5. Final Exam</p>	<p>Exam Period of the relevant term</p>	<p>45%</p>	<p>CLO1-5</p>





DPBI1041 Evolutionary and Functional Biology

Course Description

This course examines the evolutionary history of life on Earth from origins to humans and the relationship between environment, adaptation and function. Animal and plant physiology are covered with an emphasis placed on adaptation, identification and form and function in the Australian context. It aims to: engender an appreciation of the processes and causes of evolution; stimulate an appreciation of the spectacular diversity of living organisms on the planet (a diversity underpinned by a surprising degree of unity); provide students with a strong understanding of foundation-level animal and plant physiology (form and function); identify patterns of structure, organisation, development and reproduction in higher-level organisms; and provide students with a strong repertoire of (foundation-level) applied practical biological skills (for example; classification, identification of form and function, experimental design) required for future studies in higher-level biological science subjects.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Explain the concept of evolution and the evolutionary processes responsible for the past and present diversity of life on Earth using evidence from the fossil record and the living world.

CL02: Identify and classify living organisms into higher-order evolutionary groupings.

CL03: Relate plant and animal anatomy, physiology and reproduction to function, adaptation and environment.

CL04: Demonstrate proficiency in fundamental biological laboratory skills (biological drawing, and inferring scientific observations) through first-hand scientific investigations.

CL05: Gather, analyse and interpret data from first-hand scientific investigations to draw valid conclusions.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
7 hours (2 x 1hr lectures, 2 x 1 hr tutorials, 3hrs lab)	7 hours	14 hours

Topics included in the Course

Evolution and Diversity

- 1 Evidence for evolution
- 2 Origins and early evolution of life
- 3 Human evolution
- 4 Human's conserving evolution
- 5 Specialised cells
- 6 Adaptation and behaviour
- 7 Cladistics and evolutionary relationships

Animal form and function

- 1 Animal diversity and body plans
- 2 Feeding, nutrition and digestion
- 3 Circulation and gas exchange
- 4 Animal reproduction
- 5 Nervous systems
- 6 Endocrine system

Plant form and function

- 1 Plants- life on land and diversity
- 2 Plant lifecycles, growth and reproduction
- 3 Structure, internal architecture and adaptation
- 4 Plant transport – tissues and mechanisms
- 5 Plant plasticity – responding to the environment
- 6 Plant hormones, responses to enemies and communication



Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
<p>1. Natural selection and evolution Online quiz</p> <p>10 multiple choice, questions; no time limit.</p>	Week 2 of the term	5%	CLO1-2, CLO4-5
<p>2. Group video</p> <p>4 min group video presentation on an animal or plant topic chosen by students and relevant to course content.</p>	Week 6 of the term	15%	CLO1, CLO3, CLO5
<p>3. Design a Demon report</p> <p>A written report assessing research, writing and biological drawing skills; 750 words +1 A4 page biological drawing.</p>	Week 9 of the term	15%	CLO1, CLO3, CLO5
<p>4. Practical exam</p> <p>1-hour duration; 30 short answer questions. Covers all practical content.</p>	Week 12 of the term	15%	CLO1-5
<p>5. Final Exam</p> <p>100 multiple choice questions; 2.5 hours duration. Covers lecture content.</p>	Exam period of the relevant term	50%	CLO1-5





DPBA1051 Molecules, Cells and Genes

Course Description

This course aims to introduce students to the basic concepts of modern biology, with particular emphasis on cell structure, function and genetics. The chemistry of life is examined, with emphasis on how living things construct and break down macromolecules. How the genetic code controls these processes depends to a great extent on the structure and function of cell components, and cell biology is a major component of the course. The final topic is genetics - how the genetic code is inherited and how it can be modified. In the process of understanding these concepts, the student will also develop skills in scientific thinking and critical analysis.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Effectively communicate scientific findings to different audiences using different methods.

CL02: Identify different types of cells, their structures and functions, and compare and contrast them.

CL03: Outline the processes for energy generation in cells, including the structure and roles of proteins, carbohydrates and lipids.

CL04: Describe the structures of genetic material, the processes involved in cell division and gene expression, and how these relate to inheritance.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
7 Hours (3 x 1hr lectures, 2 x 1hr tutorials, 3hrs lab for 7 weeks of term)	7 hours	14 hours

Topics included in the Course

Thinking like a scientist

- 1 Scientific literature
- 2 Science communication
- 3 Experimental design

Cell biology and architecture

- 1 Properties of water and life
- 2 Prokaryotic and eukaryotic cells
- 3 Cell structure and function
- 4 Cell integrity and the plasma membrane
Nutrient and ion transport

Metabolism

- 1 Macromolecules: Carbohydrates, lipids, proteins and nucleic acids
- 2 Metabolic concepts: Catabolism, anabolism, enzymes, redox reactions
- 3 Cellular respiration and fermentation: Extracting energy from food
Photosynthesis: Synthesising food from energy

Genetics

- 1 DNA replication
- 2 Cell division and reproduction
- 3 Polymerase Chain Reaction
- 4 Gene expression: transcription, translation and regulation
- 5 Mutation
- 6 Mendel's laws of heredity
- 7 Mechanisms of inheritance
- 8 Population genetics



Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
<p>1. Online quizzes</p> <p>Five quizzes comprising multiple choice, drag and drop and fill-in-the-blanks style questions.</p> <p>Topics include prokaryotic and eukaryotic cell structure; osmosis and diffusion; photosynthesis; mitosis and meiosis; DNA replication).</p>	Weeks 2, 4, 6, 8, and 10 of the term.	5%	CLO2-4
<p>2. Science communication project</p> <p>Group project on an advanced biology topic chosen by the students. Consists of 4 components:</p> <p>Literature review</p> <p>Individual task; review of literature on group topic; 2000 words limit; 15%.</p> <p>Group proposal</p> <p>Group-written submission of ideas on the design, biological content and feasibility of group presentation; max. two A4 pages; 5%.</p> <p>Group presentation</p> <p>6-10 min group presentation on the chosen topic; format optional e.g., video, PowerPoint, web page etc; 15%.</p> <p>Group portfolio</p> <p>Group submission; Written record of group meetings; 5%.</p>	Weeks 7, 9 and 12 of the term.	40%	CLO1-4



Assessment Tasks

3. Mid-term exam 40 multiple choice questions; 50 min duration; covers content from weeks 1-5 of the term.	Week 6 of the term	15%	CLO1-3
4. Final Exam 30 x 1-mark multiple choice questions + 14 x 5-mark short answer questions; 2.5 hrs duration. Covers all course content.	Exam Period of relevant term	40%	CLO1-4





DPBA1052 Applied Biomolecular Sciences

Course Description

This course provides an overview of the application of molecular and cellular biology to the fields of medicine, plant and animal science, and food, marine and environmental sciences. It draws comparisons between contemporary and conventional technologies through the introduction of traditional and recombinant genetics, microbiology, biochemistry and fermentation engineering in the context of their contribution to the industrial application of biological systems.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Understand the fundamental principles of the industrial implementation of bioprocesses, including the professional and ethical issues associated with the commercial development of biotechnological processes.

CL02: Pose questions, design experiments and interpret the resultant experimental data with respect to the literature.

CL03: Identify inconsistencies in scientific thought and writing through a thorough understanding of the relevant literature and the correct use of references to support arguments and hypotheses.

CL04: Appreciate the interdisciplinary and rapidly changing nature of biotechnology and the importance of teamwork in both scientific discovery and the development of biotechnological processes.

CL05: Communicate scientific ideas and discoveries in biotechnology, to the industrial, scientific and general communities, using the written and spoken word as well as electronic media.

CL06: For the practical component, exemplify the industrial nature of biotechnology in support of the lecture component. In part, this will be accomplished by developing good laboratory skills, such as the ability to work safely and effectively in a laboratory, to utilise relevant equipment, and to make use of protocols, manuals and safe operating procedures.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
6 hours (2 x 1hr lectures, 2 x 1 hr tutorials, 3hrs lab for 8 weeks of term)	6 hours	12 hours

Topics included in the Course

Cell structure, biochemistry and metabolism

- 1 Eukaryotic cell structure and function
- 2 Bacterial cell structure
- 3 Microbial energetics

Microbial growth and bioenergetics

- 1 Microbial growth
- 2 Bioprocesses: growing cells on industrial scales
- 3 Microbial diversity and novel methods of cell culture
- 4 Metabolism and Enzymes
- 5 Microbial nutrient cycling and global impact

Genetics and genetic engineering

- 1 Understanding DNA, RNA, and proteins from a biological perspective
- 2 Conventional genetics and mutation
- 3 Recombinant DNA technology and the principles of cloning
- 4 Genomics and bioinformatics

Frontiers in biotechnological research and industrial applications

- 1 Biofuels
- 2 Clinical genomics
- 3 Medical mycology and biotechnology
- 4 Bioremediation
- 5 Brewing and fermented beverages
- 6 Industrial enzymes
- 7 Astrobiology
- 8 The commercialisation of scientific discoveries
- 9 Vaccines

Laboratory skills

- 1 Microbiological techniques: culturing, phenotyping and quantification
- 2 Spectrophotometry and serial dilutions
- 3 Experimental design
- 4 PCR and gel electrophoresis
- 5 Genetic modification techniques
- 6 Lab safety



Assessment Tasks

Type	When assessed	Weighting	Cross-reference to learning outcomes
<p>1. Lab quizzes Eight short multiple-choice quizzes based on weekly lab topics.</p>	Weeks 3-6, 8-11 of the term	4%	CLO1-2, CLO4, CLO6
<p>2. Lab discussions Student contribution to eight 15 min group discussions on weekly lab topics.</p>	Weeks 3-6, 8-11 of the term	8%	CLO1-6
<p>3. Literature review 2000-3000 words review of scientific literature.</p> <p>Topic: Discovery and application of industrial enzymes for use in the production of biofuels</p>	Week 8 of the term	15%	CLO1-5
<p>4. Experimental design report Group written report.</p> <p>Topic: design an experimental protocol to produce biofuel from amylase extracted from a thermophilic bacterial species; approx. 6 A4 pages.</p>	Week 12 of the term	8%	CLO1-6
<p>5. Mid-term exam 40 multiple choice questions; 50 min duration; covers content from weeks 1-5 of the term.</p>	Week 6 of the term	20%	CLO1-4, CLO6
<p>6. Final Exam 100 multiple choice questions; 2.5 hours duration. Covers all course content.</p>	Exam period of the relevant term	45%	CLO1-6





DPCA1001-3 Communication and Academic Literacy (Cal) 1, 2 & 3

Course Description

This course is designed to equip learners with the academic literacy and communication skills they require to succeed in their tertiary studies. This course is characterised by a focus on tertiary orientation, academic literacy, critical thinking, and learner autonomy. The study of advanced functional language forms which promote textual coherence and cohesion at a tertiary level are embedded. The aim of this course is to assist the process of acculturation and promote broader engagement in campus life. It also aims to foster a deeper understanding of how word choice, sentence structure, and the organisation of ideas can affect clarity of expression and facilitate greater communicative and academic competence. Students learn to recognise and create texts based on logical organisational patterns and identify expressions commonly used in academic discourse to signal relationships between ideas. There is a strong emphasis on reflection and the learning process. Learners are encouraged to work collaboratively and to develop effective self-directed study skills. Course materials are based on topics and issues which reflect the variety of disciplines students will go on to pursue as part of their future courses of study. Authentic tertiary input and resources are used where appropriate to ensure that learning activities are relevant and meaningful. The themes selected as the context for the learning activities reflect broad topics which may be studied from a variety of disciplinary perspectives. The focus includes macro-language skills, discourse management and academic literacy skills. CAL encourages collaborative and independent work with both peers and teachers to better prepare students for the Australian university context. Learners are engaged in practical task-oriented activities and assessment tasks. They are encouraged to analyse ideas, evaluate claims, and search for answers to self-generated questions. A range of academic spoken and written text types are addressed throughout the course. Some of these texts include: academic readings, case studies, reports, critical reviews, reflections, summaries, annotated bibliographies, short-answer responses, tutorial discussions, presentations, simulations etc. The course, is organised in a series of skills-based modules and is delivered in a fully online or fully face-to-face mode, using blended learning approaches. The spread of hours across the CAL course is 48 to 144 hours dependent of English language proficiency. Student requiring greater English language support may take the course over three terms.

Course Learning Outcomes

On successful completion of this course students will be able to:

CL01: Use & produce language required to operate successfully at an Australian university.

CL02: Select, analyse and evaluate information, ideas, & academic sources.

CL03: Clearly express ideas, organise information, & incorporate evidence.

CL04: Produce written texts demonstrating recognised academic conventions.

CL05: Engage in group discussions & deliver oral presentations.

CL06: Communicate with peers & university staff in both academic & social domains.

CL07: Demonstrate a reflective & self-directed approach to learning.

No. timetabled hours per week	No. personal study hours per week	Total workload hours per week
4-8 hours per week (Term 1)	Approx. 2 – 4 hours per week	6 – 12 hours per week
2 hours per week (Term 1, 2 or 3)	Approx. 1 – 2 hours per week	3 – 6 hours per week
2 hours per week (Term 1, 2, or 3)	Approx. 1 hours per week	3 – 6 hours per week

Topics included in the Course

Unit 1: Developing an academic style: Communicating at university + Being a critical reader.

Unit 2: Critical analysis and expressing ideas clearly: Writing for university + Presenting and supporting claims.

Unit 3: Incorporating different perspectives: Referring to academic sources + Synthesising information from multiple sources.

Unit 4: Negotiating and problem solving: Developing credible arguments.

Unit 5: Negotiating and problem solving: Analysing problems and evaluating responses.

Unit 6: Joining a discourse community: Investigating your field of study.

Unit 7: Joining a discourse community: Reporting on research findings.



Assessment Tasks

		48 Hours		144 Hours – Students who require extra English language support	
Type	Cross-reference to learning outcome	When assessed	Weighting (% of total marks for unit)	When assessed	Weighting (% of total marks for unit)
Reflection Activities: Reflective video, writing and interview	CLO1-3, 5-7	Week 3, 12, Term 1	20%	Week 3, Term 1 Week 12, Term 2 Week 12, Term 3	10%
Quizzes Quiz 1: Listening Skills Quiz 2: Reading & Writing Quiz 3: Academic Language Quiz 4: Academic Language	CLO1, 3, 6-7	Week 3-12, Term 1	20%	Week 4, Term 1 Week 6, Term 1 Week 7, Term 1 Week 3, Term 2	10%
Seminars Part 1. Critical Reading Seminar Part 2. Group Seminar Presentation	CLO1-7	N/A	0%	Week 8, Term 1 Week 12, Term 1	20%
Case Study Students identify the core issues and pose justifiable solutions to the problem	CLO1-4, 6-7	Week 2, Term 1	20%	Week 6, Term 2	10%
Emergency Summit Students assume the role of a real-world stakeholder in an 'Emergency Summit' and prepare a well-reasoned response to a given 'wicked problem'.	CLO1-7	Week 6, Term 1	20%	Week 11, Term 2	10%



Assessment Tasks

Individual Poster Presentation/Report	CLO1, 7	Week 3, Term 1	20%	Week 6, Term 3 Week 11, Term 3	20%
Integrated Skills Test Reading, Listening & Writing	CLO1-4	N/A	0%	Exam Week, Term 3	20%

