MEDI11002 *Physics for Health Sciences*
Term 3 - 2017

Profile information current as at 03/05/2024 04:56 pm

General Information

Overview
This unit creates the foundations for an understanding of physics as it applies to our world around us, our bodies and our clinical environments. You will learn how to explain observed phenomena, predict changing behaviour and communicate using science conventions. You will apply problem-solving skills and knowledge of physics to find reasonable solutions to both word- and numerical-based situations.

Details
Career Level: *Undergraduate*
Unit Level: *Level 1*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
There are no requisites for this unit.
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 3 - 2017

- Distance
- Mackay

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**
Weighting: 15%
2. **Written Assessment**
Weighting: 25%
3. **Examination**
Weighting: 60%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Unit Coordinator

Feedback
Number of assessment items

Recommendation
Maintain the use of 3 assessments as they contribute effectively towards gauging student performances and areas of improvements.

Feedback from Have your say evaluation Unit Coordinator

Feedback
Length and content of lecture videos

Recommendation
Review the duration of the lecture videos and investigate possibility of including visuals related to explanation of key concepts within the lecture videos.

Feedback from Unit Coordinator

Feedback
Face-to-face campus visits

Recommendation
Campus visits are not utilised effectively by the students and attendance is extremely poor. Recommend removal from future deliveries and incorporating targeted online Zoom sessions to encourage better student engagement.

Feedback from Have your say evaluation Unit Coordinator

Feedback
ISL tutorial sessions

Recommendation
Student attendance in ISL tutorial sessions was extremely poor and impacted on student participation and engagement in the unit. Having multiple online Zoom sessions per week will be a better approach as it will enable students to work around their other commitments and attend at least one of the scheduled sessions.

Feedback from Have your say evaluation Unit Coordinator

Feedback
Revision quizzes

Recommendation
Inclusion of formative self-study revision quizzes may be useful in helping students consolidate the key concepts and gauge their understanding of the content.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Discuss fundamental concepts, theories and principles of classical mechanics, matter, heat, sound, electromagnetism, electromagnetic energy and the atom.
2. Apply fundamental physics concepts, theories and principles to explain physical phenomena of everyday life and clinical situations and to predict outcomes under changing conditions.
3. Use problem-solving and numeracy skills, knowledge of fundamental physics concepts, theories and principles, and standard conventions of science communication to present reasonable solutions to problems.

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level | • Introductory Level | • Intermediate Level | • Graduate Level | ◦ Professional Level | ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes		
	1	2	3
1 - Written Assessment - 15%	•	•	•
2 - Written Assessment - 25%	•	•	•
3 - Examination - 60%	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes		
	1	2	3
1 - Communication	•	•	•
2 - Problem Solving		•	•
3 - Critical Thinking			
4 - Information Literacy	•	•	•
5 - Team Work			
6 - Information Technology Competence			
7 - Cross Cultural Competence			
8 - Ethical practice			
9 - Social Innovation			
10 - Aboriginal and Torres Strait Islander Cultures			

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 15%	•	•		•						
2 - Written Assessment - 25%	•	•		•						
3 - Examination - 60%	•	•		•						

Textbooks and Resources

Textbooks

MEDI11002

Prescribed

Conceptual Physics : Global Edition
Edition: 12th edn (2015)
Authors: Paul G Hewitt
Pearson
Harlow , Essex , England
ISBN: 9781292057132
Binding: Paperback

Additional Textbook Information
Students may use either the hard copy or e-book version of this text. Both provide access to hyperlinked multimedia learning resources that supplement the text. These online learning activities and resources will regularly be assigned as directed learning activities during the term. The e-book version of the text allows both online (web-based) and offline (downloaded copy) access to the book and has no expiry date. It is usable on both computers and tablets (specifically iPads and Android OS).
The hardcopy textbook is available through the University Bookshop at http://bookshop.cqu.edu.au/texts.asp. The e-book version of this text can be purchased at the publisher's webpage http://www.pearson.com.au/9781292057538.

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Caroline Falconi Unit Coordinator
c.falconi@cqu.edu.au

Schedule

Week 1 - 06 Nov 2017

Module/Topic	Chapter	Events and Submissions/Topic
Science Fundamentals Kinematics Using learning goals in your study	Conceptual Physics 1, 3 'Chapter 1: Physics and the Life Sciences' from Physics for the Life Sciences 2nd ed. by Zinke-Allemang, Sills, Nejat, Galiano-Riveros.	Introductory tutorial

Week 2 - 13 Nov 2017

Module/Topic	Chapter	Events and Submissions/Topic
Force and Energy	Conceptual Physics 2, 4, 5, 6, 7	Tutorial on Week 1 content

Week 3 - 20 Nov 2017

Module/Topic	Chapter	Events and Submissions/Topic
States of Matter, Pressure and Fluids	Conceptual Physics 11 - 14 'Chapter 14: Fluid Dynamics of Non-Viscous Fluids' from *Introduction to Biological Physics for the Health and Life Sciences* by Franklin, Muir, Scott, Wilcocks & Yates	Tutorial on Week 2 content

Week 4 - 27 Nov 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pressure in Gases, Heat and Temperature Fundamentals of Traveling Waves	Conceptual Physics 14 - 16, 18, 19	Tutorial on Week 3 content

Vacation Week - 04 Dec 2017

Module/Topic	Chapter	Events and Submissions/Topic
Break week		

Week 5 - 11 Dec 2017

Module/Topic	Chapter	Events and Submissions/Topic
Sound	Conceptual Physics 19, 20 - 21	Tutorial on Week 4 content **Written Assignment 1** Due: Week 5 Thursday (14 Dec 2017) 4:00 pm AEST

Week 6 - 18 Dec 2017

Module/Topic	Chapter	Events and Submissions/Topic
Electrostatics Introduction to Electrodynamics	Conceptual Physics 22 - 23	Tutorial on Week 5 content

Week 7 - 01 Jan 2018

Module/Topic	Chapter	Events and Submissions/Topic
Applied Electrodynamics Electrical Safety	Conceptual Physics 23 (see also assigned reading from online resources)	Tutorial on Week 6 content

Week 8 - 08 Jan 2018

Module/Topic	Chapter	Events and Submissions/Topic
Magnetism and Electromagnetism	Conceptual Physics 24 - 25	Tutorial on Week 7 content

Week 9 - 15 Jan 2018

Module/Topic	Chapter	Events and Submissions/Topic
Electromagnetic Energy	Conceptual Physics 26, 30, 31	Tutorial on Week 8 content

Week 10 - 22 Jan 2018

Module/Topic	Chapter	Events and Submissions/Topic
Light and Optics	Conceptual Physics 26 - 30	Tutorial on Week 9 content **Written Assignment 2** Due: Week 10 Wednesday (24 Jan 2018) 4:00 pm AEST

Week 11 - 29 Jan 2018

Module/Topic	Chapter	Events and Submissions/Topic
The Atom and Quanta, Ionising Radiation	Conceptual Physics 32 - 33	Tutorial on Week 10 content

Week 12 - 05 Feb 2018

Module/Topic	Chapter	Events and Submissions/Topic

Review and consolidation		Tutorial on Week 11 content Q&A review tutorials

Review/Exam Week - 12 Feb 2018

Module/Topic	Chapter	Events and Submissions/Topic
		Written exam during Exam Period

Exam Week - 12 Feb 2018

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Students are expected to spend on average 10 - 12 hours of time each week in their study activities for this unit. A suggested time budget for weekly study is:

- 2 - 2 1/2 hours for watching recorded lectures and taking notes
- 1 - 1 1/2 hours for completing assigned reading
- 1/2 - 1 hour for completing other posted learning activities
- 2 - 2 1/2 hours for creating study notes to meet weekly learning goals using lectures and readings
- 1/2 hour for adding week-specific content to your exam 'cheat sheet'
- 1 - 1 1/2 hours for applying weekly content using posted end-of-chapter questions
- 1/2 hour for working on posted tutorial questions in preparation for tutorial
- 1 hour for participation in online tutorial
- 1 - 2 hours for assignment preparation and/or revision for final examination

Tutorials are interactive sessions where your participation enables you to check your understanding of and your ability to apply the week's concepts and for you to build your skills in responding to test questions. Your regular participation strongly supports your success in the unit. While online tutorials will be recorded, these recordings are not intended to replace your active participation in live sessions.

Assessment Tasks

1 Written Assignment 1

Assessment Type
Written Assessment

Task Description
The intent of this assessment is for you to demonstrate your ability to do three things:

- select principles, concepts and facts that are relevant to a situation,
- apply the concepts logically to solve a problem,
- communicate your reasoning using terminology and science conventions correctly.

This assignment consists of short and long answer questions focusing on topics from Weeks 1 - 3 of unit content as detailed in the posted weekly learning goals. Each question will require you to apply the concepts and factual knowledge from the unit topics to a given situation. You may be asked to explain why the situation has occurred, what would happen if the situation were altered in a specific way, how to achieve a specific outcome in altering the situation and/or what outcome would logically follow the occurrence of the situation. Some questions will involve solving numerical problems.
You should be able to answer these questions using your learning from watching the unit lecture videos, reading the assigned text and other assigned learning activities. There is no expectation that you will need to research additional material in order to complete the assessment. Weekly tutorials will provide practice in analysing assessment questions and structuring logical and thorough responses.
You should use the number of marks indicated for the question as a guide to the depth of response and number of main points expected. There is no target word count for the assignment or for any individual question. However, a guidance statement for each question will indicate a typical number of paragraphs that would be sufficient to address the question. The completed assignment must be word-processed and in either Word or pdf file format. Further details on the questions, marking rubric and formatting of the assessment will be provided on the unit Moodle site.

Assessment Due Date
Week 5 Thursday (14 Dec 2017) 4:00 pm AEST

Return Date to Students

General feedback will be provided within 2 weeks. Individualised feedback will be provided within 3 weeks.

Weighting
15%

Assessment Criteria
Each question on the assignment instruction page will indicate the number of marks per segment. Responses are scored based on:

- correct use of terminology
- factual correctness of presented material
- correct use of science conventions
- relevance of stated content to the question asked
- application of foundation concepts to the question asked
- clarity, thoroughness and completeness of explanations
- logic of problem-solving
- application of an explicit step-by-step approach to solving numerical problems
- correct and complete citing of information sources
- execution of assignment instructions

More details can be found in the Assessment Instruction page and the marking rubric/scoring guide posted on the unit Moodle site.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Discuss fundamental concepts, theories and principles of classical mechanics, matter, heat, sound, electromagnetism, electromagnetic energy and the atom.
- Apply fundamental physics concepts, theories and principles to explain physical phenomena of everyday life and clinical situations and to predict outcomes under changing conditions.
- Use problem-solving and numeracy skills, knowledge of fundamental physics concepts, theories and principles, and standard conventions of science communication to present reasonable solutions to problems.

Graduate Attributes

- Communication
- Problem Solving
- Information Literacy

2 Written Assignment 2

Assessment Type
Written Assessment

Task Description
The intent of this assessment is for you to demonstrate your ability to do three things:

- select principles, concepts and facts that are relevant to a situation,
- apply the concepts logically to solve a problem,
- communicate your reasoning using terminology and science conventions correctly.

This assignment consists of short and long answer questions focusing on topics from Weeks 4 - 8 of unit content as detailed in the posted weekly learning goals. (You will likely need to apply some knowledge and/or skill from your study in Weeks 1 - 3 in order to complete the assignment, but the emphasis is on topics from Weeks 4 - 8.)
Each question will require you to apply the concepts and factual knowledge from the unit topics to a given situation. You may be asked to explain why the situation has occurred, what would happen if the situation were altered in a specific way, how to achieve a specific outcome in altering the situation and/or what outcome would logically follow the occurrence of the situation. Some questions will involve solving numerical problems.
You should be able to answer these questions using your learning from watching the unit lecture videos, reading the

assigned text and other assigned learning activities. There is no expectation that you will need to research additional material in order to complete the assessment. Weekly tutorials will provide practice in analysing assessment questions and structuring logical and thorough responses. You are expected to apply your experience and feedback from Assignment 1 to your completion of this assignment. Accordingly, this Assignment 2 has more questions to complete and has a higher weight toward the final grade.
You should use the number of marks indicated for the question as a guide to the depth of response and number of main points expected. There is no target word count for the assignment or for any individual question. However, a guidance statement for each question will indicate a typical number of paragraphs that would be sufficient to address the question.
The completed assignment must be word-processed and in either Word or pdf file format. Further details on the questions, marking rubric and formatting of the assessment will be provided on the unit Moodle site.

Assessment Due Date
Week 10 Wednesday (24 Jan 2018) 4:00 pm AEST

Return Date to Students

General feedback will be provided within 2 weeks. Individualised feedback will be provided within 3 weeks.

Weighting
25%

Assessment Criteria
Each question on the assignment instruction page will indicate the number of marks per segment. Responses are scored based on:

- correct use of terminology
- factual correctness of presented material
- correct use of science conventions
- relevance of stated content to the question asked
- application of foundation concepts to the question asked
- clarity, thoroughness and completeness of explanations
- logic of problem-solving
- application of an explicit step-by-step approach to solving numerical problems
- correct and complete citing of information sources
- execution of assignment instructions

More details can be found in the Assessment Instruction page and the marking rubric/scoring guide posted on the unit Moodle site.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Discuss fundamental concepts, theories and principles of classical mechanics, matter, heat, sound, electromagnetism, electromagnetic energy and the atom.
- Apply fundamental physics concepts, theories and principles to explain physical phenomena of everyday life and clinical situations and to predict outcomes under changing conditions.
- Use problem-solving and numeracy skills, knowledge of fundamental physics concepts, theories and principles, and standard conventions of science communication to present reasonable solutions to problems.

Graduate Attributes

- Communication
- Problem Solving
- Information Literacy

Examination

Outline
Complete an invigilated examination.

Date
During the examination period at a CQUniversity examination centre.

Weighting
60%

Length
180 minutes

Minimum mark or grade
50%

Exam Conditions
Restricted.

Materials
Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).
Calculator - non-programmable, no text retrieval, silent only

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem