



MATH11247 *Foundation Mathematics*

Term 2 - 2021

Profile information current as at 09/04/2024 12:28 pm

All details in this unit profile for MATH11247 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

Foundation Mathematics is designed to provide you with foundation concepts, rules and methods of elementary mathematics. The main aim of this unit is to provide the foundations of mathematics, which are necessary to develop a unified body of knowledge. You will learn algebraic fundamentals and equation solving. Exponents and logarithms will be introduced together with linear systems, quadratic functions and graphs. You will also study introductory trigonometry, geometry and ratios. You will use mathematics foundation concepts to solve problems.

Details

Career Level: *Undergraduate*

Unit Level: *Level 1*

Credit Points: 6

Student Contribution Band: 7

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 2 - 2021

- Online

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: Pass/Fail

2. **Portfolio**

Weighting: Pass/Fail

3. **Examination**

Weighting: Pass/Fail

Assessment Grading

This is a pass/fail (non-graded) unit. To pass the unit, you must pass all of the individual assessment tasks shown in the table above.

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 reflection

Feedback

Ensure students are using the most up to date learning materials.

Recommendation

Update the unit to use the recently released edition of the prescribed unit textbook.

Feedback from Unit coordinator reflection

Feedback

Students need to maintain an ethical practice in assignment preparation.

Recommendation

Continue to reinforce to students the need for ethical practice in all aspects of study and embed several short academic integrity scenarios in the assignment specifications to demonstrate appropriate behaviours.

Feedback from Student Unit and Teaching Evaluation

Feedback

There is a high student satisfaction with the unit content, approach and level of support offered.

Recommendation

Continue to foster the current learning and teaching environment.

Unit Learning Outcomes

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

1. Apply number and algebra concepts to solve problems
2. Analyse and solve problems using trigonometry
3. Develop solutions to problems through application of area and volume equations
4. Formulate and apply mathematical functions and graphs in solving equations
5. Select appropriate mathematical methods, use them to investigate and solve problems, and interpret the results
6. Use mathematics as a language to communicate results, concepts and ideas in context
7. Document the solutions to problems in a way that demonstrates a clear, logical and precise approach.

The Learning Outcomes for this unit are linked with the Engineers Australia Stage 1 Competency Standards for Professional Engineers in the areas of 1. Knowledge and Skill Base, 2. Engineering Application Ability and 3. Professional and Personal Attributes at the following levels:

Introductory 1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline. (LO: 1N 2N 3N 4N 5N 6N 7N) 2.1 Application of established engineering methods to complex engineering problem solving. (LO: 1N 2N 3N 4N 5N) 2.2 Fluent application of engineering techniques, tools and resources. (LO: 1N 2N 3N 4N 5N) 3.2 Effective oral and written communication in professional and lay domains. (LO: 6N 7N) 3.3 Creative, innovative and pro-active demeanour. (LO: 1N 2N 3N 4N 5N) 3.4 Professional use and management of information. (LO: 6N 7N)

Note: LO refers to the Learning Outcome number(s) which link to the competency and the levels: N - Introductory, I - Intermediate and A - Advanced.

Refer to the Engineering Undergraduate Course Moodle site for further information on the Engineers Australia's Stage 1 Competency Standard for Professional Engineers and course level mapping information<https://moodle.cqu.edu.au/course/view.php?id=1511>

Alignment of Learning Outcomes, Assessment and Graduate Attributes

 N/A Level	 Introductory Level	 Intermediate Level	 Graduate Level	 Professional Level	 Advanced Level
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Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Written Assessment - 0%	•	•	•	•	•		
2 - Portfolio - 0%						•	•
3 - Examination - 0%	•	•	•	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
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 - 0%	•	•	•	•						
2 - Portfolio - 0%	•	•	•	•						

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
3 - Examination - 0%	•	•	•	•						

Textbooks and Resources

Textbooks

MATH11247

Prescribed

Engineering Mathematics

Eighth Edition (2017)

Authors: John Bird

Routledge

New York , New York , USA

ISBN: 978-1-138-67359-5

Binding: Paperback

Additional Textbook Information

Both paper and eBook versions can be purchased at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code).

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Access to a document scanner and/or pdf converter (all assessment submitted electronically as pdf file)
- Access to a printer (for printing assessment and tutorial materials)
- Access to a webcam, speakers and microphone or a headset (for participating in Zoom lectures and tutorials)

Referencing Style

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

Teaching Contacts

Roland Dodd Unit Coordinator
r.dodd@cqu.edu.au

Schedule

Week 1 - 12 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 1.1 to 1.4 and 2.1 to 2.7	Chapter 1: Revision of fractions, decimals and percentages; and Chapter 2: Indices, standard form and engineering notation	Textbook Practice Exercises 1 to 9 and Week 1 Tutorial Exercises

Week 2 - 19 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 5.1 to 5.5 and 6.1 to 6.3	Chapter 5: Algebra; and Chapter 6: Further algebra	Textbook Practice Exercises 24 to 31 and Week 2 Tutorial Exercises

Week 3 - 26 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 7.1 to 7.4 and 8.1 to 8.5	Chapter 7: Partial fractions; and Chapter 8: Solving simple equations	Textbook Practice Exercises 32 to 38 and Week 3 Tutorial Exercises

Week 4 - 02 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 9.1 to 9.4 and 10.1 to 10.5	Chapter 9: Transposition of formulae; and Chapter 10: Solving simultaneous equations	Textbook Practice Exercises 39 to 45 and Week 4 Tutorial Exercises

Week 5 - 09 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 11.1 to 11.6 and 12.1 to 12.6	Chapter 11: Solving quadratic equations; and Chapter 12: Inequalities	Textbook Practice Exercises 46 to 55 and Week 5 Tutorial Exercises

Vacation Week - 16 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 23 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 13.1 to 13.4 and 14.1 to 14.5	Chapter 13: Logarithms; and Chapter 14: Exponential functions	Textbook Practice Exercises 56 to 63 and Week 6 Tutorial Exercises

Week 7 - 30 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 18.1 to 18.7 and 19.1 to 19.6	Chapter 18: Areas of common shapes; and Chapter 19: The circle	Textbook Practice Exercises 74 to 81 and Week 7 Tutorial Exercises

Week 8 - 06 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 20.1 to 20.8 and 21.1 to 21.3	Chapter 20: Volumes and surface areas of common solids; and Chapter 21: Irregular areas and volumes and mean values of waveforms	Textbook Practice Exercises 82 to 90 and Week 8 Tutorial Exercises

Week 9 - 13 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 22.1 to 22.8 and 23.1 to 23.6	Chapter 22: Introduction to trigonometry; and Chapter 23: Trigonometric waveforms	Textbook Practice Exercises 91 to 99 and Week 9 Tutorial Exercises

Week 10 - 20 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 25.1 to 25.6 and 26.1 to 26.7	Chapter 25: Triangles and some practical applications; and Chapter 26: Trigonometric identities and equations	Textbook Practice Exercises 102 to 110 and Week 10 Tutorial Exercises

Week 11 - 27 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
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Textbook Sections 28.1 to 28.3 and 31.1 to 31.4	Chapter 28: Straight line equations; and Chapter 31: Graphical solution of equations	Textbook Practice Exercises 116, 117, 123 to 126 and Week 11 Tutorial Exercises
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Week 12 - 04 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
Textbook Sections 32.1 to 32.6	Chapter 32: Functions and their curves	Textbook Practice Exercises 127 to 129 and Week 12 Tutorial Exercises

Review/Exam Week - 11 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 18 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
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Term Specific Information

Unit Coordinator: Dr Roland Dodd

Phone: (07) 4923 2877

Email: r.dodd@cqu.edu.au

Location: Rockhampton North Campus, Building 30, Floor 1, Room 18

Assessment Tasks

1 Weekly Competency Tests

Assessment Type

Written Assessment

Task Description

Students will progress through a series of weekly Competency Tests linked to the textbook, *Engineering Mathematics*. Upon completion of the prescribed weekly course work, students are required to complete the corresponding Competency Test. The test is then submitted for marking and feedback. A result of 80% or more is required for each Competency Test. If a result of less than 80% occurs on a submission, students are required to review the course work and then complete, and pass, an additional Competency Test.

Assessment Due Date

The competency test will be due by Thursday 5:00PM AEST in the week following the associated prescribed course work. Due dates will be as advised on the MATH11247 Moodle site.

Return Date to Students

It is envisaged that feedback and solutions will be available within two weeks, or as soon as the marking process is completed.

Weighting

Pass/Fail

Assessment Criteria

No Assessment Criteria

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

The Competency Test is uploaded as a single PDF document at the MATH11247 unit Moodle site. Full details are provided on the unit Moodle site.

Learning Outcomes Assessed

- Apply number and algebra concepts to solve problems
- Analyse and solve problems using trigonometry
- Develop solutions to problems through application of area and volume equations
- Formulate and apply mathematical functions and graphs in solving equations
- Select appropriate mathematical methods, use them to investigate and solve problems, and interpret the results

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

2 Portfolio

Assessment Type

Portfolio

Task Description

Students will develop and submit a portfolio. This task aims to reward all students in the unit for their continuing efforts in the unit and their focus on the weekly course work throughout the term.

The portfolio submission is the workbook of solutions to the prescribed weekly course work. This task is split into three components; Workbook (Part 1), Workbook (Part 2) and Workbook (Part 3).

Students submit their solutions to the questions from the practice exercises relating to the unit textbook. Completion of these exercises is prescribed as the minimal weekly level of required effort to grasp the essentials of MATH11247 Foundation Mathematics. The workbooks will capture and formalise the portfolio of work that students have developed. Each workbook, contributing to the portfolio, will be graded as either Pass or Fail. If a Fail is awarded, students are given the opportunity to review their feedback and then submit a revised workbook submission that addresses this feedback.

Assessment Due Date

Due dates will be as advised on the MATH11247 Moodle site.

Return Date to Students

It is envisaged that feedback and solutions will be available within two weeks, or as soon as the marking process is completed.

Weighting

Pass/Fail

Minimum mark or grade

Students need to receive a Pass for each workbook submission in the portfolio.

Assessment Criteria

The portfolio consists of a series of workbooks. To receive a passing grade each workbook is to contain:

- 1) numbered pages;
- 2) student signature on each page of the workbook of solutions;
- 3) solutions for each problem in the recommended weekly course work;
- 4) each solution identified by its associated practice exercise and question number;
- 5) a workbook index linking solutions to the recommended weekly course work; and
- 6) university standard of presentation.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Each workbook is uploaded as a single PDF document at the MATH11247 unit Moodle site. Full details are provided on the unit Moodle site.

Learning Outcomes Assessed

- Use mathematics as a language to communicate results, concepts and ideas in context
- Document the solutions to problems in a way that demonstrates a clear, logical and precise approach.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

Examination

Outline

Complete an invigilated examination.

Date

During the examination period at a CQUniversity examination centre.

Weighting

0%

Length

180 minutes

Minimum mark or grade

Students must score a minimum of 50% of the marks available on the final examination.

Exam Conditions

Open Book.

Materials

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

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