1. General Course Information

1.1 Course Details

Course Code:	**FND114**
Course Name:	**General Mathematics**
Trimester:	**Trimester 2, 2022**
Program:	**Diploma of Educational Studies**
Credit Points:	10
Course Coordinator:	Dr Patrick Marchisella
Document modified:	13 June 2021

Course Description

This course is designed for students who require a mathematics background suitable for transition to further studies in Education. This course combines content from Year 11 (Units 1 & 2) as well as Year 12 (Units 3 & 4) of QCAA syllabus requirements.

Assumed Knowledge

There are no prerequisites for this course

1.2 Teaching Team

Your teacher can be contacted via the email system on the portal.

Name	Email
Patrick Marchisella	patrick.marchisella@staff.griffithcollege.edu.au

1.3 Meet with your teacher

Your teacher is available each week to meet outside of normal class times. This is called consultation. Times that your teacher will be available for consultation will be found on the Teacher's tile on your Course Site.

1.4 Timetable

Your timetable is available on the Griffith College Portal at Class Timetable in Student and Services.

1.5 Technical Specifications

All students must have access to a computer or suitable mobile device such as desktop, laptop, or tablet. In addition, up-to-date browser access, a reliable high-speed internet connection with enough upload and download capacity, a webcam and headset including microphone are needed.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

This course aims to equip students with an increased knowledge and understanding of required mathematics topics for further studies in education.

2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Select, recall and use facts, rules, definitions and procedures;

2. Demonstrate understanding of mathematical concepts and techniques within conceptual problems;

3. Communicate using mathematical, statistical, and everyday language and conventions;

4. Evaluate the reasonableness of solutions;

5. Justify procedures and decisions by explaining mathematical reasoning; and

6. Solve problems by applying mathematical concepts and techniques.

2.3 Generic Skills and Capabilities

For further details on the Generic Skills please refer to the Graduate Generic Skills and Capabilities policy.

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

Generic Skills and Capabilities		Taught	Practised	Assessed
Acquisition of discipline knowledge and skills with critical judgement		✓	✓	✓
Communication and collaboration			✓	
Self-directed and active learning			✓	
Creative and future thinking			✓	✓
Social responsibility and ethical awareness				
Cultural competence and awareness in a culturally diverse environment				

3. Learning Resources

3.1 Required Learning Resources

Non-programmable scientific calculator.

3.2 Recommended Learning Resources

There are **two textbooks** used throughout this course:

- General Mathematics, Cambridge Senior Mathematics for Queensland, Units 1 & 2
- General Mathematics, Cambridge Senior Mathematics for Queensland, Units 3 & 4

We will use resources from both textbooks throughout the course, you are encouraged to purchase both books, alternatively you may use the freely available PDF chapters provided on the course site. Due to copyright the PDF chapters provided on the course site may not print for you at home.

Please note if you prefer to work by hand, the physical textbooks and online textbook chapter PDF's, have no 'space' to write your answers so you will also need an exercise book/notepad for your working and homework activities.

3.3 College Support Services and Learning Resources

Griffith College provides many facilities and support services to assist students in their studies. Links to information about support resources that are available to students are included below for easy reference.

- [Digital Library](#) – Databases to which Griffith College students have access to through the Griffith Library   Databases.

- [Study Toolbox](#) – there is a dedicated website for this course on the Griffith College Digital Campus.

- Academic Integrity - Griffith College is committed to ensuring academic integrity is understood and maintained by all staff and students. All students learn about academic integrity through engagement with Academic Integrity online modules within the Academic and Professional Studies course.

- [Services and Support](#) provides a range of services to support students throughout their studies including   academic advice and assignment help from Student Learning Advisors, and personal and welfare support from Student Counsellors.

- [Jobs and Employment](#) in the Student Hub can assist students with career direction, resume and interview   preparation, job search tips, and more.

- [IT Support](#) provides details of accessing support, information on s numbers and internet access and computer lab rules.

3.4 Other Information about your Learning

Preparation and Participation in Learning

You need to prepare before attending your scheduled learning experience. Work through the learning content prepared by your teacher which is found on the course site. Make sure you complete the learning activities set each week, they are designed to support your learning. Active participation in your learning will enhance your success. Ask questions when something is unclear or when you want to bring some issue to your teacher's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

Attendance

You are expected to actively engage in all learning experiences which underpin the learning content in this course. You are expected to engage with the learning content and learning activities outside of timetabled class times. This requires you to be an active agent of your learning. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you are encouraged to BYOD (bring your own device) to class such as a laptop or tablet. This is not a requirement as computer lab facilities are available on campus, however, the use of such devices in the classroom is encouraged with appropriate and considerate use principles being a priority.

Consultation Sessions

Teachers offer extra time each week to assist students outside the classroom. This is known as 'consultation time.' You may seek assistance from your teacher on email or in person according to how the teacher has explained this to the class. Attendance during consultation time is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Learning Materials

Learning materials are made available to you in the course site. The learning materials are arranged in Modules. In each Module you will find Learning Content, Learning Experiences and Learning Activities. Learning Content will be engaged with prior to the scheduled Learning Experience (your weekly class). This will ensure you are prepared for the scheduled Learning Experience by being aware of the content to be covered and therefore will be able to actively participate in the session. Learning Activities are accessed after the scheduled session for purposes of review, consolidation of learning, and preparation for the Evidence of Learning Tasks in the course.

In addition, **Anytime Anywhere** learning material is provided in the course. This learning material provides support, interactive tools and directions for students who occasionally cannot attend the weekly scheduled Learning Experience (either in person or on Zoom) perhaps due to illness or other commitments. The Anytime Anywhere learning material should also be used in conjunction with Learning Content and Learning Activities resources.

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course learning content even when you are not specifically asked to do so by your teacher. The weekly guide will be helpful to organise your learning. This involves revising the weekly course learning material and completing the learning activities. It also means you will need to find additional information to evidence your learning beyond that given to you, and to construct your own response to a question or topic. All of this requires careful planning of your time. Expect to spend, on average, at least 10 hours per week including class time for each of your courses.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80%, students are engaged in their learning and that GPA is maintained at equal to or greater than 3.5 [please see Griffith College Policy Library - Program Progression Policy - for more information].

Teacher and Course Evaluation

Your feedback is respected and valued by your teachers. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your teacher or by completing course and teacher evaluations via Griffith College's evaluation tool whenever these are available.

4. Learning Content, Learning Experiences and Learning Activities

4.1 Modules for Learning and Weekly Learning Content, Learning Experiences and Learning Activities

	Learning Content	Learning Experiences	Learning Activities	Evidence of Learning	Learning outcome
Module 1 – Money, Measurement and Relations					
Week 1	*Consumer Arithmetic*	**Class Activities** *Calculate weekly or monthly wages from an annual salary, and wages from an hourly rate* *Compare prices and values using the unit cost method* *Use currency exchange rates to determine the cost in Australian dollars of purchasing a given amount of a foreign currency, or vice versa* *Review definitions of rates and percentages* *Apply percentage increase or decrease in various contexts*	***Homework*** *Chapter 1 (Units 1&2 Textbook)* *Chapter 2*		*1, 6*
Week 2	*Shape and Measurement*	***Class Activities***	***Homework*** *Chapter 3*		*1, 2, 6*

		Review Pythagoras" theorem and use it to solve practical problems *Solve practical problems requiring the calculation of perimeters and areas of circles, sectors, triangles, rectangles, trapeziums and parallelograms* *Calculate the volumes and capacities of standard 3-dimensional objects* *Calculate the surface areas of standard 3-dimensional objects* *Review the conditions for similarity of 2-dimensional objects* *Use the scale factor for two similar figures to solve linear scaling problems*			
Week 3	*Linear Equations and Graphs*	***Class Activities*** *Identify and solve linear equations, including variables on both sides, fractions.* *Develop a linear equation from a description in words* *Construct straight line graphs using y= mx + c* *Determine the slope and intercepts of a straight-line graph from both its equation and its plot* *Interpret the slope and intercept of a straight-line graph used to model and analyse a practical situation* *Solve a pair of simultaneous linear equations* *Solve practical problems that involve finding the point of intersection of two straight lines*	***Homework*** *Chapter 4*	***Module 1 Quiz – Complete by Week 4 – 20%***	*1, 2, 5, 6*
Module 2 – Applied Trigonometry, Algebra and Matrices, Univariate Data Analysis					
Week 4	*Applications of Trigonometry*	***Class Activities*** *Review the use of trigonometric ratios to find the length of an unknown side or the size of an unknown angle in a right-angled triangle* *Determine the area of a triangle given two sides and the included angle, and solve related practical problems* *Solve 2-dimensional problems involving non-right-angled triangles using the sine rule and the cosine rule* *Solve 2-dimensional practical problems involving angles of elevation and depression*	***Homework*** *Chapter 6*		*1, 2, 6*
Week 5	*Algebra and Matrices*	***Class Activities*** *Substitute numerical values into linear algebraic and simple non-linear algebraic expressions, and evaluate* *Find the value of the subject of the formula, given the other pronumerals in the formula* *Transpose linear equations and simple non-linear algebraic equations* *Recognise different types of matrices and determine the size of a matrix* *Perform matrix addition, subtraction and multiplication by a scalar* *Perform matrix multiplication*	***Homework*** *Chapter 7* *Chapter 8*		*1, 2, 4, 5*
Week 6	*Univariate Data Analysis*	***Class Activities*** *Define univariate data* *Classify statistical variables as categorical or numerical* *Classify a categorical variable as ordinal or nominal and use methods to display the data*	***Homework*** *Chapter 9*	***Module 2 Quiz – Complete by Week 7 – 20%***	*1, 2, 3, 5*

		Select, construct and justify an appropriate graphical display to describe the distribution of a numerical dataset Describe the graphical displays in terms of shape, measures of centre and spread, and outliers, and interpret this information Determine the mean and standard deviation of a dataset Construct and use parallel boxplots to compare datasets			
Module 3 – Sequences, Change and Earth Geometry					
Week 7	*Growth and Decay in Sequences*	***Class Activities*** *Display the terms of an arithmetic sequence and demonstrate that arithmetic sequences can be used to model linear growth and decay in discrete situations* *Use the rule for the nth term of an arithmetic sequence from the pattern of terms in the sequence to make predictions* *Display the terms of a geometric sequence and demonstrate that geometric sequences can be used to model exponential growth and decay in discrete situations* *Use the rule for the nth term of a geometric sequence from the pattern of terms in the sequence to make predictions* *Use geometric sequences to model and analyse practical problems involving geometric growth and decay*	***Homework*** *Chapter 4 (Units 3 & 4 Textbook)*		*1-6*
Week 8	*Earth Geometry and Time Zones*	***Class Activities*** *Define the meaning of great circles* *Define the meaning of angles of latitude and longitude in relation to the equator and the prime meridian* *Locate positions on the Earth's surface given latitude and longitude* *Calculate angular distance (in degrees and minutes) and distance (in kilometres) between 2 places on the same meridian* *Calculate angular distance (in degrees and minutes) and distance (in kilometres) between 2 places on the same parallel of latitude* *Define Greenwich Mean Time (GMT) and the International Date Line* *Understand the link between longitude and time* *Solve problems involving time zones* *Calculate time differences between two places on Earth*	***Homework*** *Chapter 5*	***Module 3 Quiz – Complete by Week 9 – 25%***	*1, 2, 6*
Module 4 – Investing and Networking					
Week 9	*Loans, Investments and Annuities*	***Class Activities*** *Calculate the effective annual rate of interest and use the results to compare investment returns and cost of loans with various interest periods (Chapter 2 Recap)* *Solve problems involving compound interest loans or investments* *Investigate the effect of the interest rate and repayment amount on the time taken to repay the loan*	***Homework*** *Chapter 7* *Chapter 8*	***Instructions for Assignment***	*1,3,5,6*

		Solve problems involving annuities, including perpetuities as a special case	*Chapter 9*		
Week 10	*Graphs and Networks*	**Class Activities** *Define the terms graph, edge, vertex, loop, degree of a vertex, subgraph, simple graph, complete graph, directed graph and network* *Identify practical situations that can be represented by a network and construct such networks* *Define the terms planar graph and face* *Apply Euler's formula to solve problems relating to planar graphs* *Define the terms walk, path, closed walk, cycle, connected graph and bridge* *Investigate and solve practical problems to determine the shortest path between two vertices in a graph*	**Homework** *Chapter 10*		*1,4,5*
Week 11	*Networks and Decision Mathematics*	**Class Activities** *Define the terms tree and spanning tree identify a minimum spanning tree* *Use minimum spanning trees to solve minimal connector problems* *Construct a network diagram to represent the durations and interdependencies of activities that must be completed during a project* *Use forward and backward scanning to determine the earliest starting time and the latest starting time for each activity in a project* *Use the earliest starting time and the latest starting time to locate the critical path/s for the project* *Use the critical path to determine the minimum time for a project to be completed*	**Homework** *Chapter 11* *Chapter 12*		*2,4,5,6*
Week 12	*Revision or Catch Up Week*	**Class Activities** *Revision of Weeks 9 -11* *Practise Quiz*	**Homework** *Chapter 13 – Revision Activities - All*	**Assignment Due - 10%** *Module 4 Quiz - 25%*	

5. Evidence of Learning

5.1 Evidence of Learning Summary

	Evidence of learning	Weighting	Learning outcome	Due Date
Module 1 – Money, Measurement and Relations				
1	Module 1 Quiz	20%	1, 2, 6	Week 4
Module 2 – Applied Trigonometry, Algebra and Matrices, Univariate Data Analysis				
2	Module 2 Quiz	20%	1, 3, 6	Week 7
Module 3 – Sequences, Change and Earth Geometry				
3	Module 3 Quiz	25%	2, 3, 4	Week 9
4	Assignment	10%	3, 5, 6	Week 12
Module 4 – Investing and Networking				
5	Module 4 Quiz	25%	4, 5, 6	Exam Period

5.2 Evidence of Learning Task Detail

1. Evidence of Learning Task 1: Module 1 Quiz (20%)

Task Type: Online Quiz
Due Date: Week 4
Weight: 20% (mark out of 20)
Length: (if applicable)
Task Description:
Online Quiz at the end of Module 1, to show an application of knowledge based on the learning activities of the first 3 Weeks. The quiz will be a combination of short answers, multiple choice, and problem solving/modelling questions. This quiz represents the QCAA General Mathematics Unit 1.
Criteria and Marking: Criteria and Marking details will be presented to students closer to the due date in class and on the course site.
Submission: Online quiz

2. Evidence of Learning Task 2: Module 2 Quiz (20%)

Task Type: Online Quiz
Due Date: Week 7
Weight: 20% (mark out of 20)
Length: (if applicable)
Task Description:
Online Quiz at the end of Module 2, to show an application of knowledge based on the learning activities of weeks 4 - 6. The quiz will be a combination of short answers, multiple choice, and problem solving/modelling questions. This quiz represents the QCAA General Mathematics Unit 2.
Criteria and Marking: Criteria and Marking details will be presented to students closer to the due date in class and on the course site. Submission: online quiz

3. Evidence of Learning Task 3: Module 3 Quiz (25%)

Task Type: Online Quiz
Due Date: Week 7
Weight: 25% (mark out of 25)
Length: (if applicable)
Task Description:
Online Quiz at the end of Module 3, to show an application of knowledge based on the learning activities of Weeks 7 - 8. The quiz will be a combination of multiple choice and problem solving/modelling questions. This quiz represents parts of the QCAA General Mathematics Unit 3.
Criteria and Marking: Criteria and Marking details will be presented to students closer to the due date in class and on the course site.
Submission: online quiz

4. Evidence of Learning Task 4: Financial Decisions (10%)

Task Type: Assignment
Due Date: Week 12
Weight: 10%
Length: (if applicable)
Task Description:
This assignment will be a short research assignment based around the Financial Mathematic topics (financial arithmetic and loans, investments, and annuities). Students will be expected to conduct their own research and portray their results as a table and a graph. Students will also have an opportunity to reflect on their results by providing their interpretation of results and outlining their decision-making process in 1-2 paragraphs. This assignment incorporates skills gathered from Weeks 1, 6, 9 and 10.
Criteria and Marking: Criteria and Marking details will be presented to students closer to the due date in class and on the course site.
Submission: This assignment must be submitted via the assignment submission point, found under the "Evidence of Learning" tab in the FND114 course site in Week 12.

5. Evidence of Learning Task 5: Module 4 Quiz

Task Type: Online Quiz
Due Date: Exam period
Weight: 25% (mark out of 25)
Length: (if applicable)
Task Description:
Online Quiz at the end of Module 4 to show an application of knowledge based on the learning activities of the Weeks 9 - 12. The quiz will be a combination of short answers, multiple choice, and problem solving/modelling questions. This quiz represents the QCAA General Mathematics Unit 4.
Criteria and Marking: Criteria and Marking details will be presented to students closer to the due date

in class and on the course site.
Submission: online quiz

All assessment items must be reasonably attempted and submitted, as a minimum requirement, plus an overall score of at least 50% to pass this course.

5.3 Late Submission

An Evidence of Learning task submitted after the due date, without an approved extension from the Course Coordinator, will be penalised. The standard penalty is the reduction of the mark allocated to the Evidence of Learning task by 5% of the maximum mark applicable for the evidence of learning task, for each working day or part working day that the task is late. Evidence of Learning tasks submitted more than five working days after the due date are awarded zero marks.

Please refer to the Griffith College website - Policy Library > Assessment Policy for guidelines and penalties for late submission.

5.4 Other Information about Evidence of Learning

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the Course.

Requests for extension

To apply for an extension of time for an evidence of learning task, you must submit an Application for Extension of Assignment form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. Griffith College Student Medical Certificate]. Please refer to the Griffith College website – Policy Library for guidelines regarding extensions and deferred Evidence of Learning Tasks.

Return of Evidence of Learning Tasks

1. Marks awarded for in-trimester evidence of learning tasks, except those being moderated externally with Griffith University, will be available on the course site within fourteen [14] days of the due date. This does not apply to the final evidence of learning task in this course (marks for this task will be provided with the final course result).

2. Students will be advised of their final grade through the Digital Campus. Students can review their final exam papers after student grades have been published. Review of final exam papers will not be permitted after the final date to enrol.

3. Marks for **all** evidence of learning tasks including the final exam (if applicable) will be recorded in the Course Site and made available to students through the Course Site.

   The sum of your marks of evidence of learning *tasks in this course does not necessarily imply your final grade for the course. Standard grade cut off scores can be varied for particular courses, so you need to wait for the official release of grades to be sure of your grade for this course.*

6. Policies & Guidelines

Griffith College assessment-related policies can be found in the Griffith College Policy Library which include the following policies:

Assessment Policy, Special Consideration, Deferred Assessment, Alternate Exam Sittings, Medical Certificates, Academic Integrity, Finalisation of Results, Review of Marks, Moderation of Assessment, Turn-it-in Software Use.

These policies can be accessed within the Policy Library

Academic Integrity Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your teachers and Student Learning Advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of an allegation of a breach of academic integrity being made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the Griffith College Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Griffith College website - Policy Library > Academic Integrity Policy

Reasonable Adjustments for Assessment – The Disability Services policy

The Disability Services policy (accessed within the Policy Library) outlines the principles and processes that guide the College in making reasonable adjustments to assessment for students with disabilities while maintaining academic robustness of its programs.

Risk Assessment Statement

There are no out of the ordinary risks associated with this course.