Griffith COLLEGE
Queensland, Australia

1. General Course Information

1.1 Course Details

Course Code:	**FND105**
Course Name:	**Advanced Mathematics**
Trimester:	**Trimester 1, 2022**
Program:	**Foundation Program**
Credit Points:	**10**
Course Coordinator:	**Hamid Nejad**
Document modified:	**1 February 2022**

Course Description

This course strengthens and builds upon the knowledge acquired in the previous FND104 mathematics course and will further equip students with practical knowledge of the mathematical, and statistical principles required for their future studies.

Assumed Knowledge

To successfully enrol in this Course, you must provide evidence that you have completed the following course:

- FND104 - Essential Mathematics

1.2 Teaching Team

Your teacher/s can be contacted via email as below:

You will also find their email in the Teacher's tile on your Course Site.

Name	Email
Dr Hamid (Seyed) Nejad	sene@portal.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 Digital Campus at My Apps, Timetable. This class is split into 2 x 2 hour classes per week. You must attend both classes per week.

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 bowser access, a reliable high-speed internet connection with enough upload and download capacity, a webcam and headset including microphone are needed.

Microsoft Word or Excel will be required for your assignment.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

Upon the completion of this course students will be able to apply knowledge of more advanced mathematical principles, building on skills acquired in FND104. This course aims to further equip students with practical knowledge of the mathematical, financial and statistical principles required for further studies. It aims to develop students critical thinking and mathematical modelling skills and to instruct them in finding solutions to problems in a clear and logical fashion

2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Demonstrate knowledge of a range of appropriate mathematical methods including algebra, functions and their graphs.
2. Demonstrate understanding of the applications of trigonometric functions and their graphs.
3. Demonstrate knowledge and understanding of the applications of calculus.
4. Justify procedures, models, and decisions by explaining mathematical reasoning.
5. Solve complex 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.

Microsoft Word and Excel will be required for your assignment.

All class notes and activities will be provided on the course site.

3.2 Recommended Learning Resources

n/a

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

As you progress from the Foundation program to Diploma studies with Griffith College you will note some changes to the terminology used about your learning. This includes **Before Class** = Learning Content; **Classwork** = Learning Experiences; **Homework** = Leaning Activities and **Assessment** = Evidence of Learning. We have therefore included both in the below information.

Preparation and Participation in Learning

You need to prepare before attending your scheduled learning experience. Work through the **Before Class** (Learning Content) prepared by your teacher which is found on the course site. Make sure you complete the **Homework** (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 **Classwork** (Learning Experiences) which underpin the learnings in this course. You are expected to engage with the Before Class work and Homework 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 **Before Class** (Learning Content), **Classwork** (Learning Experiences), **Homework** (Learning Activities) and **Assessment** (Evidence of Learning). **Before Class** work will be engaged with prior to the scheduled **Classwork** (your weekly class). This will ensure you are prepared for the scheduled class by being aware of the content to be covered and therefore will be able to actively participate in the session. **Homework** (Learning Activities**)** are accessed after the scheduled session for purposes of review, consolidation of learning, and preparation for **Assessment (**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 class (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 before class and homework resources.

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course 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 homework 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. Before Class (Learning Content), Classwork (Learning Experiences) and Homework (Learning Activities) and Assessment (Evidence of Learning)

4.1. Modules for Learning and Weekly Before Class, Classwork, Homework and Assessment

	Before Class (Learning Content)	**Classwork (Learning experiences)**	**Homework (Learning activities)**	**Assessment (Evidence of Learning)**	**Learning outcomes**
	Module 1				
1	Fundamental and Functions	**Classwork** Introduction to the Course and Course Outline Revision of FND104 Concepts including Algebra, Fractions, Surds, and Functions Functions and Relations – Linear and Quadratic	**Homework** Week 1 Workbook Activities		1
2	Average Rates of Change, Logarithms and Exponents	**Classwork** Rates of Change (Gradient Equation) Logarithm Revision Growth and Decay Exponents and Exponential Functions	**Homework** Week 2 Workbook Activities		1, 4

3	Trigonometry	**Classwork** Trigonometry Revision – Sin Cos Tan Sin and Cosine Rules (Non – Right Angle) The Unit Circle	**Homework** Week 3 Workbook Activities		1, 2
4	Periodic Functions	**Classwork** Periodic Functions Sin Cosine and Tan Periodic Functions and Graphs	**Homework** Week 4 Workbook Activities **Practice test and revision**	**Test 1 (10%)**	1, 2
5	Applications of Trigonometry	**Classwork** Sum and Difference Rules Applications of Trigonometry	**Homework** Week 5 Workbook Activities		2, 5
6	Revision and Mid – Trimester Exam	**Classwork** Revision and Catch up (Class 1) Mid-trimester exam in Class 2 of Week 6. Class 2 – Introduction to Limits (Start of Module 2 Content)	**Homework** Practice Test and Revision Activities	**Mid-Trimester Exam 30%**	1, 2, 4, 5
	Module 2				
7	Introduction to Calculus	**Classwork** Introduction to Calculus Limits	**Homework** Week 7 Workbook Activities		1, 3
8	Derivatives	**Classwork** First Principles Introduction to Derivatives Derivative Rules	**Homework** Week 8 Workbook Activities		3, 4
9	Derivatives	**Classwork** Applications of Derivatives Anti-Derivatives	**Homework** Week 9 Workbook Activities		3, 5
10	Integrals	**Classwork** **Revision week 7 to 9** Introduction to Integrals Applications of Integral Calculus Test 2 in Class 2 or week 10	**Homework** Week 10 Workbook Activities Practice test and revision	**Test 2 (10%)**	3, 5

11	Statistics *Microsoft Excel will be required*	**Classwork** Bivariate data, variables and investigating associations Displaying bivariate data (scatterplot) Measuring the strength for linear relationships – The Correlation Coefficient The Coefficient of Determination Fitting a linear model to numerical data Using the least squares regression line to model a relationship between two numerical variables Association and Causation *Microsoft Excel will be required*	**Homework** Week 11 Activities *Microsoft Excel will be required.*		5, 6
12	**Revision**	**Classwork** Revision of weeks 7 – 11 Practice Test Assignment Workshop	**Homework** Revision and Practice Test Activities	**Assignment Due - Friday Week 12 – 20%**	4, 5, 6
	Exam Week			**Module 2 Exam - Final Exam Period - 40%**	3, 4, 5

5. Assessment (Evidence of Learning)

5.1 Assessment Summary (Evidence of Learning Summary)

	Assessment	Weighting	Learning outcome	Due Date
1	Test 1	10%	1,2,5	Week 4
2	Module 1 – Mid-trimester Exam	30%	1,2,5	Week 6 – In Class
3	Test 2	10%	2,3,4,5	Week 12
4	Module 2 – Final Exam	40%	3,4,5	Exam Period
5	In-class work & Homework	10%	1,2,3,4,5	Week 1-12

5.2 Assessment Task Detail (Evidence of Learning)

1. Assessment Task 1: Test 1 (10%)

Task Type: Quiz
Due Date: Class 2 Week 4, date to be confirmed on course site
Weight: 10%, Marked out of: TBC
Length: 50 minutes
Task Description: This quiz is designed to test understanding on concepts taught in weeks 1 to 4 – Algebra, Functions, Linear and Quadratic functions, Exponential functions and Logarithms
Criteria and Marking: This assessment will assess learning outcome 1, 2, 5.
Submission: online quiz held in class during Class 2 of Week 4

2. Assessment Task 2: Module 1 Mid Trimester Examination (30%)

Task Type: Mid Trimester Examination
Due Date: in class Week 6, date to be confirmed on course site
Weight: 30%, Marked out of: TBC
Length: 120 minutes
Task Description: This examination is designed to test understanding of the concepts taught in weeks 1 to 6 – Algebra, Functions, Linear and Quadratic functions, Exponential functions and Logarithms, Trigonometric and period functions.**Criteria and Marking:** This assessment will assess learning outcome 1, 2, 5.
Submission: online examination held in class 2 of Week 6

3. Assessment Task 3: Test 2 (10%)

Task Type: Quiz
Due Date: (if known or in classWeek #, date to be confirmed on course site)
Weight: 10%, Marked out of: TBC
Length: 50 minutes
Task Description: This quiz is designed to test understanding of the concepts taught in weeks 4 to 9 – Trigonometric, Periodic functions, Limits and Derivatives
Criteria and Marking: This assessment will assess learning outcomes 2,3,4,5.
Submission: online quiz held in class 2 of Week 10.

4. Assessment Task 4: Module 2 Final Examination (40%)

Task Type: Final Examination
Due Date: Exam Week as per Academic Calendar, date to be confirmed when timetable is released))
Weight: 40%, Marked out of: TBC
Length: 120minutes plus 10 minutes reading time
Task Description: This quiz is designed to test understanding of the concepts taught in weeks 7 to 11 – Limits, Derivatives, Integrals and Linear regression.
Criteria and Marking: This assessment will assess learning outcomes 3,4,5.
Submission: online scheduled examination

5. Assessment Task 5: Weekly in-class work and homework (10%)

Task Type: Weekly class work and homework
Due Date: weekly
Weight: 10%, Marked out of: TBC
Length:
Task Description: Weekly in-class work and homework during class time
Criteria and Marking: This assessment will assess learning outcomes 1,2,3, 4,5.
Submission: TBC

In order to pass this Course, students must:

A. Attempt all assessment items
B. Demonstrate assurance of learning of all learning outcomes through graded Assessment Tasks.

5.3 Late Submission

An Assessment Task submitted after the due date, without an approved extension from the teacher, will be penalised. The standard penalty is the reduction of the mark allocated to the Assessment Task by 5% of the maximum mark applicable for the Assessment Task, for each working day or part working day that the task is late. Assessment 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 Assessments (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 Evidence of Learning Tasks-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 academic 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 Evidence of Learning Tasks – 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 Evidence of Learning Tasks 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.

Note: Griffith College acknowledges content derived from Griffith University in Diploma level courses, as applicable.