Griffith COLLEGE
Queensland, Australia

1. General Course Information

1.1 Course Details

Course Code:	**1012SCG**
Course Name:	**Mathematics 1B**
Trimester:	**Trimester 1, 2022**
Program:	Diploma of Engineering
Credit Points:	10 CP
Course Coordinator:	Maria Aneiros
Document modified:	

Course Description

Mathematics 1B [1012SCG] course revises and extends basic integral and differential calculus of one variable and introduces differential equations. It provides a foundation in the mathematical sciences needed for later studies both in an engineering and science context.

Assumed Knowledge

There are no prerequisites for this course, but you are strongly recommended to successfully complete the 1011SCG - Mathematics 1A course or have studied calculus before enrolling in this course.

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
Maria Aneiros	maria.aneiros@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 Digital Campus at My Apps, Timetable.

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.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

This course extends the range of fundamentals mathematical techniques available to students to enable them to analyse physical processes mathematically. A sound knowledge of these techniques is vital for students undertaking studies in engineering.

2.2 Learning Outcomes

After successfully completing this course you should be able to:

1 Describe what a function is and determine its inverse, if it exists.

2 Describe what a limiting process is, calculate a limit and how it applies to real world situations.

3 Determine the derivative of a function by multiple methods, and in particular, to find the minimum or maximum value of a function and apply it to real world applications.

4 Evaluate the integral of a function and understand what this means in the context of particular examples and applications.

5 Derive and solve simple first order ordinary differential equations that arise in a scientific context.

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

Griffith University notes in Griffith College's course site.

3.2 Recommended Learning Resources

Washington, A. (2009). Basic Technical Mathematics with Calculus (8th or 9th edition) Pearson (Addison Wesley).

Edwards C. H., Penney D. E. (2002) Calculus, Early Transcendentals (matrix version), (6th edition), Prentice Hall.

Swokowski, E., Olinick, M., Pence, D. P. (1996). Calculus (6th ed.) PWS-Kent Publishing Co.

Stewart, A. (2010). Calculus Concepts & Context (4th ed.) Cengage.
Available at: http://www.stewartcalculus.com/media/9_home.php

Anton H., Bivens I. C., Davis S. (2012). Calculus Early Transcendentals, (10th ed.). Wiley.

Fitzgerald G.F. and Peckham E.A., (2002). Mathematical Methods for Engineers and Scientists, (3rd ed.), Prentice-Hall.

Larson R., Hostetler R.P. and Edwards B.H., (2006). Calculus with Analytical Geometry, (8th ed.), Houghton Mifflin, Boston.

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				
1	Functions	Problem solving activities on standard functions	Online exercises	Test 1 Final exam	1
2	Functions	Problem solving activities on standard periodic, exponential and logarithmic functions	Online exercises	Test 1 Final exam	1
3	Limits	Problem solving activities on Limits and their applications	Online exercises	Test 2 Final exam	2
	Module 2				
4	Derivatives and rules	Problem solving activities on derivatives and the rules used to find them	Online exercises	Test 2 Final exam	3
5	Derivative applications	Problem solving activities on applications of derivatives	Online exercises	Test 2 Final exam	3

6	Derivative applications	Problem solving activities on applications of derivatives	Online exercises	Test 3 Final exam	3
	Module 3				
7	Integration techniques	Problem solving activities on integration techniques	Online exercises	Test 3 Final exam	4
8	Integration applications	Problem solving activities on applications of integration	Online exercises	Test 3 Final exam	4
9	Integration applications	Problem solving activities on applications of integration	Online exercises	Final exam	4
	Module 4				
10	Introduction to first order differential equations	Problem solving activities on ODEs.	Online exercises	Final exam	5
11	Introduction to first order differential equations	Problem solving activities on ODEs.	Online exercises	Final exam	5

5. Evidence of Learning

5.1 Evidence of Learning Summary

	Evidence of learning	Weighting	Learning outcome	Due Date
1	Test 1 – Functions	10%	1	Week 3
2	Test 2 – Limits, Derivatives & their applications	10%	2, 3	Week 6
3	Test 3 – Derivatives and Integration rules and their applications	10%	3, 4	Week 9
4	Final exam Content from Week 1 - 12	40%	1, 2, 3, 4, 5	Final Exam Week
5	Online homework and online content activities	30%	1, 2, 3, 4, 5	Week 1-12

5.2 Evidence of Learning Task Detail

1. Evidence of Learning Task 1: Test 1 - Functions (10%)

Task Type: Test or quiz
Due Date: Week 3
Weight: 10%, Marked out of: 10
Length: 50 minutes duration
Task Description: This quiz is designed to test understanding of the concepts taught in weeks 1 to 2. Students will be expected to know what functions are and how to manipulate them.
Criteria and Marking: Correctness of answers will be assessed based on an appropriate marking scheme. The quiz will be held online. Final marks posted on Griffith College portal.
Submission: Online quiz/exam

2. Evidence of Learning Task 2: Test 2 - Limits, derivatives and their applications (10%)

Task Type: Test or quiz
Due Date: Week 6
Weight: 10%, Marked out of: 10
Length: 50 minutes duration
Task Description: This quiz will test the students' understanding of the concepts taught in weeks 3 to 5. Students will be expected to know how to calculate limits and derivatives and solve problems for their relevant applications.
Criteria and Marking: Correctness of answers will be assessed based on an appropriate marking scheme. The quiz will be held online. Final marks posted on Griffith College portal.
Submission: Online quiz/exam

3. Evidence of Learning Task 3: Test 3 - Derivatives, integration and their applications (10%)

Task Type: Test or quiz
Due Date: Week 9
Weight: 10%, Marked out of: 10

Length: 50 minutes duration
Task Description: This quiz is designed to test understanding of the concepts taught in weeks 6 to 9. Students will be expected to know how to calculate integrals by the various methods taught as well as some of their applications.
Criteria and Marking: Correctness of answers will be assessed based on an appropriate marking scheme. The quiz will be held online. Final marks posted on Griffith College portal.
Submission: Online quiz/exam

4. Evidence of Learning Task 4: Final Exam (40%)

Task Type: Exam – selected and constructed responses
Due Date: Final Exam block
Weight: 40%, Marked out of: 40
Length: 120 minutes duration
Task Description: The final exam will test the students' understanding of the course material and the relevant problem-solving skills. The final exam will explicitly examine the material taught in the whole course.
Criteria and Marking: Students need to get at least 40% in the final exam to pass the course. Exams will be marked according to a marking scheme. Final marks posted on Griffith College portal.
Submission: Online exam

5. Evidence of Learning Task 5: Online weekly homework (30%)

Task Type: Log of learning activities
Due Date: Week 12
Weight: 30%, Marked out of: 30
Length: n/a
Task Description: Students will be directed to complete online learning content exercises prior to class-time and weekly homework from the learning activities as the trimester progresses. This environment assesses the ability to solve problems as well as builds self-confidence. Students will be awarded with 30%, or part thereof, for completed work.
Criteria and Marking: Students must obtain at least 51% out of the 30% to pass the course**.** To gain the full 30% students will be expected to complete all exercises given over the course of the trimester. These activities can be re-attempted online multiple times but must be completed by their due date.
Submission: Online weekly homework quizzes.

In order to pass this Course, students must:

A. Attempt all assessment items and achieve an aggregate mark of at least 50% overall.
B. demonstrate assurance of learning of all learning outcomes through graded Evidence of Learning Tasks.
C. Obtain at least 40% in the final exam
D. Obtain at least 51% out of the 30% of online weekly homework activities

5.3 Late Submission

An Evidence of Learning 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 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 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.