



Queensland, Australia

Course Code:	1012SCG
Course Name:	Mathematics 1B
Semester:	Semester 1, 2016
Program:	Diploma of Engineering
Credit Points:	10
Course Coordinator:	Maria Aneiros
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Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.	
Name	Email
Maria Aneiros	maria.aneiros@staff.griffithcollege.edu.au

Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be given in the first week of lectures. A list of times and rooms will be published on the Griffith College Portal under the "myTimetable" link.

Prerequisites

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

- 1011SCG - Mathematics 1A

Brief Course Description

Mathematics [1012SCG] course provides students with an introduction to the basic mathematical principles that lie behind calculus, complex numbers and statistics.

Rationale

Engineers are required to understand the basic mathematical principles that lie behind calculus, complex numbers and statistics. Mathematics [1012SCG] course provides students with an introduction to these mathematical concepts and ideas. The content is designed to develop students understanding of continuous mathematics and their application in engineering.

Aims

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

Learning Outcomes

Upon successful completion of this course you will be able to demonstrate...

1. An ability to think critically
2. An ability to solve problems in a clear and logical fashion
3. An understanding of the basic mathematical knowledge required by employers in the field of science and engineering
4. Knowledge of the relevant basic definitions and concepts, and how they are applied
5. Knowledge of the basic techniques and methodologies presented in the course
6. An ability to model actual situations in a mathematical way, and to derive useful results

Texts and Supporting Materials

Printed notes for this course will be available for students to purchase from Griffith Book Store.

Suggested Reference Texts:
Stewart, A (2010). Calculus Concepts & Context 4th edition. Cengage.

Allyn Washington, Basic Technical Mathematics with Calculus, 7th or 8th edition, Pearson (Addison Wesley), 2005

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

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

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

Organisation and Teaching Strategies

The contact time in this course takes place over five hours. Three hours of each week are for the lecturer to present the theoretical and practical aspects of the concepts to be learned.

During the one hour tutorial, students will work through a number of core problems on material presented in the previous week. In the one-hour workshop guidance will be provided to extend your understanding of the material, and to provide guidance with assessment.

Each week the lecturer will set homework for you to complete. This work must be completed in preparation for the class in the following week. This work will be assessed during the problem classes.

Students are expected to attend all lectures and tutorials. During the weekly tutorials, students will be asked to solve selected problems related to material covered in the previous week's lectures. At the end of each tutorial, the student's attempts at these problems will be assessed.

The lectures are used to explain the different mathematical techniques presented in this course.

The tutorials provide students with the opportunity to apply these mathematical techniques and obtain assistance if problems arise.

Class Contact Summary

Attendance

As you undertake this course you are expected to:

- Study independently.
- Sit the mid-semester and final exams.
- Complete all problem sheets and problem classes given during the semester.

Participation in Class

You are expected to actively participate in classes each week.

Consultant Times

Attendance during consultation times is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Materials

Lecture notes will be made available to you on the Learning@Griffith College site on the student portal. You are also expected to bring your text book and calculator to each class.

Independent Learning

You are expected to reinforce your learning from class time by undertaking sufficient independent study {approximately 6 hours per week outside of class time} so that you can achieve the learning outcomes of the course.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80% 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].

Content Schedule

Weekly Teaching Schedule

Week	Topic	Activity	Readings
1	Combinatorics & Probability	Lecture	
2	Dependent Probability and Probability Distributions	Lecture	

3	Complex Numbers	Lecture	
4	Argand Plane and De Moivre's Theorem	Lecture	
5	Mid semester exam	Examination	
6	Integration/Differentiation Polynomial Division	Lecture	
7	Integration by Parts and Partial Fractions	Lecture	
8	Integration Applications and Improper Integrals	Lecture	
9	Ordinary Differential Equations, First Order. Applications of ODEs	Lecture	
10	Ordinary Differential Equations, Second Order, Homogenous and Inhomogeneous equations	Lecture	
11	Linear Algebra – Matrices, Solutions of Systems of Linear Equations Using Gaussian Elimination	Lecture	
12	Linear Algebra – Matrices, Determinants, Inverses, Eigenvalues and Eigenvectors.	Lecture	
13	Exam preparation and revision	Lecture	

Assessment

This section sets out the assessment requirements for this course.

Summary of Assessment

Item	Assessment Task	Weighting	Relevant Learning Outcomes	Due Date
1	Mid-Semester Exam	25%	1,2,3,4,5,6	5
2	All tutorials & Online homework	15%	2,4,5	2,3,4,5,7,8,9,10,11,12
3	Final Exam	60%	All..	14

Assessment Details

Tutorials & Online homework deal with the basic understanding of the fundamental mathematics being assessed. They are single concept and review the ability to manipulate and compute.

Students must attend and actively participate in at least 9 or the 10 weekly tutorials.

The **mid semester exam** will assess your understanding of the terms and concepts presented throughout the course.

The **final semester exam** is designed to assess your overall grasp of the concepts and methods covered in the course.

Submission and Return of Assessment Items

Normally you will be able to collect your assignments in class within fourteen [14] days of the due date for submission of the assignment.

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.

Extensions

To apply for an extension of time for an assignment, 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 Medical Certificate]. Please refer to the Griffith College website - Policy Library - for guidelines regarding extensions and deferred assessment.

Assessment Feedback

Marks awarded for assessment items will also be available on the on-line grades system on the Student Website within fourteen [14] days of the due date. You may arrange an appointment during the designated consultation time to discuss assessment in more detail.

Generic Skills

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	Taught	Practised	Assessed
Written Communication	Yes	Yes	Yes
Oral Communication		Yes	
Information Literacy		Yes	Yes
Secondary Research			
Critical and Innovative Thinking	Yes	Yes	Yes
Academic Integrity		Yes	Yes
Self Directed Learning			
Team Work		Yes	
Cultural Intelligence			
English Language Proficiency			

Additional Course Generic Skills

Additional Course Information

Teacher and Course Evaluations

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

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 lecturers, tutors 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.

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 Academic Integrity Policy on the Griffith College website – Policy Library.

Risk Assessment Statement

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

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