



Queensland, Australia

<b>Course Code:</b>	<b>MTH001A</b>
<b>Course Name:</b>	<b>Advanced Mathematics 1</b>
<b>Semester:</b>	<b>Semester 1, 2016</b>
<b>Program:</b>	Certificate IV Tertiary Preparation Program
<b>Credit Points:</b>	10
<b>Course Coordinator:</b>	Gordon Cameron
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#### Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.	
<b>Name</b>	<b>Email</b>
Gordon Cameron	<a href="mailto:gordon.cameron@staff.griffithcollege.edu.au">gordon.cameron@staff.griffithcollege.edu.au</a>
Wayne Stevens	<a href="mailto:wayne.stevens@staff.griffithcollege.edu.au">wayne.stevens@staff.griffithcollege.edu.au</a>

#### 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

Students must have achieved a passing grade or higher in BUS104 Mathematics to be eligible to study MTH001 Advanced Mathematics according to set stream structures for particular pathways.

- BUS104A- Mathematics

#### Brief Course Description

This course consolidates basic mathematics. It is designed to introduce students to the fundamental elements of trigonometry and calculus and to develop a clear understanding of the concepts and functions in terms of life related situations. The course further explores the rules of differentiation and integral calculus and applies them to establish a number of patterns that relate to scientific and engineering problems.

#### Rationale

Scientists and engineers are required to have a clear understanding of concepts and functions in terms of life related situations. This course provides students with an introduction to these mathematical concepts and ideas. The content is designed to develop students understanding of trigonometry, calculus and differentiation.

#### Aims

This course aims to equip students with sound knowledge of the mathematical principles required for science and engineering. It aims to develop students critical thinking skills and to instruct them in finding solutions to problems in a clear and logical fashion.

#### Learning Outcomes

On successful completion of this course, you should be able to

- 1 Revise understanding of basic mathematics such as algebra, geometry and rational functions
- 2 Revise understanding of polynomial, exponential and logarithmic functions and construct graphical representations of functions.
- 3 Use appropriate terminology associated with trigonometry, differential calculus and integral calculus.
- 4 Demonstrate knowledge of a range of periodic, trigonometric functions and their applications.
- 5 Demonstrate knowledge of the concept of limits and a range of differential and integral calculus concepts.
- 6 Demonstrate understanding of applications of differential and integral calculus.
- 7 Apply formulae and problem solving processes to a selection of life related situations.

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## Texts and Supporting Materials

### Required Text:

MTH001A Workbook will be given to you in your first class. If you require more than one copy, the workbook is available for free on the portal.

### Other Requirements:

Non-programmable Scientific Calculator

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## Organisation and Teaching Strategies

The contact time in this course takes place over five (5) hours split across two different days. During the 5 hour classes you will be presented with the theoretical and practical aspects of the concepts to be learned. You will also have the opportunity to work on the practical aspects of the course and extend your understanding of the material, and to obtain guidance with assessment.

### Class Contact Summary

#### Attendance:

Your attendance in class will be marked twice during a five hour class. To receive full attendance, you must be present in the classroom on both occasions. Therefore, you are encouraged to attend and participate in all classes throughout the semester.

#### Participation in Class:

During classes each week you are expected to actively participate in exercises covering the current topic.

#### Consultation 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 and you are advised to print these out before each class to help guide you in your study program.

#### 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. This independent study may involve working through problems, completing homework tasks and preparing for assessment pieces. The homework tasks you are set each week must be completed in preparation for the following week's class as these will be reviewed during class time each week.

#### 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].

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## Content Schedule

The material taught during this course will be divided into the sections that are shown in the following table.

### Weekly Teaching Schedule

Week	Topic	Activity	Readings
1	Fundamentals	Class	Workbook Exercises
2	Functions	Class	Workbook Exercises
3	Logarithms and Exponents	Class	Workbook Exercises
4	Trigonometry I	Class	Workbook Exercises
5	Trigonometry II	Class	Workbook Exercises
6	Periodic Functions	Class	Workbook Exercises
7	Limits and Instantaneous Rates of Change	Class	Workbook Exercises
8	Derivatives I	Class	Workbook Exercises
9	Derivatives II	Class	Workbook Exercises
10	Turning Points	Class	Workbook Exercises
11	Anti-derivatives and Indefinite Integrals	Class	Workbook Exercises
12	Area under a curve	Class	Workbook Exercises
13	Revision	Class	

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## Assessment

This section sets out the assessment requirements for this course.

### Summary of Assessment

Item	Assessment Task	Weighting	Relevant Learning Outcomes	Due Date
1	Quiz 1	10%	1,2,3&4	6
2	Md Semester Exam	20%	1,2,3&4	7
3	Assignment	10%	1&7	11
4	Quiz 2	10%	5,6&7	12
5	Workbook	10%	1,2,3,4,5,6&7	13
6	Final Exam	40%	5,6&7	14

### Assessment Details

The **Concept Quizzes** are designed to assess progress in your understanding and application and to provide you with feedback on your understanding and level of ability. The quizzes also act as feedback to inform your study for the mid-semester and final exams.

The **Mid-Semester Exam** assesses foundation knowledge and skills in the first six weeks of the course and real life application abilities. This exam also acts as a focal point for you to plan and monitor your current and future learning progress.

The **Individual Assignment** assesses your ability to use appropriate terminology and allows you to demonstrate your understanding and application of the topic areas covered within the course.

The **In-Class Activity** (the Assessable Workbook) assess your understanding of the concepts covered in class on a weekly basis. Your lecturer will examine your workbook each week, and marks will be awarded based on in-class and outside-of-class work.

The **Final Examination** assesses your knowledge and applied skills in topic areas related to the last seven weeks of the course and gives you an opportunity to demonstrate learning throughout the semester. This exam provides a culmination point to encourage a planned effort and consistent application and requires you to review and apply material covered throughout the semester.

### Submission and Return of Assessment Items

Normally you will be able to access your results within fourteen [14] days of the due date for submission of the assignment. ALL assessment submitted in this course must be retained by Griffith College as directed by the Australian Skills Quality Authority (ASQA) made under section 28 (1) of the National Vocational Education and Training Regulator Act 2011.

### 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.

### 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:

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

### **Additional Course Generic Skills**

### **Additional Course Information**

In addition to formal contact hours, you are provided with extra support through individual consultation with teaching staff, tutorials in English language, and self-access computer laboratories.

### **Teacher and Course Evaluations**

Students who evaluated the course provided much positive qualitative feedback about the teaching in the course. Students appreciated seeing problems being worked on the whiteboard as they could clearly see the steps that were needed to solve a mathematical problem. Students also found that teachers were diligent in providing individual attention to check for understanding of mathematical problem solving techniques. Importantly, students stated that they felt respected by the teachers of the course.

As a response to feedback from students, the text books for this course are now available as eBooks as well as in hard copy.

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 on the Griffith College portal 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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