FPMT005

Advanced Mathematics 1

MQC3 Day 2014

Macquarie City Campus

Contents

Disclaimer

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General Information

Unit convenor and teaching staff
Lecturer in Charge
Matthew Tydd
matthew.tydd@mq.edu.au
Contact via matthew.tydd@mq.edu.au
City Campus
Contact lecturer

Credit points
3

Prerequisites

Corequisites

Co-badged status

Unit description
The purpose of this course, in conjunction with FPMT006, is to provide the background necessary to study science based subjects or business subjects which require some applications of mathematics such as physics, chemistry, accounting or economics and to prepare the student for first year mathematics courses such as MATH135. This course deals with the fundamentals of mathematics; beginning with basic algebra and calculator skills and scientific notation and progressing to basic statistics, linear quadratic and more generalised modelling and matrices. The course also covers polynomial, logarithmic and exponential functions, as well as their uses and differentiation of polynomials and the basic rules for differentiation and the graphs of such functions. It is an applied course and examples from a diverse range of applications will be introduces as appropriate. Concepts dealt with in accounting and business subjects, economics and the physical sciences are introduced where appropriate. Trigonometric functions and some applications are introduced. The concept of a function and the mathematics behind simple and compound interest, GST, depreciation, and break-even analysis is explored at an intermediate level. The student will have an appreciation of the application of mathematics to many areas of study at an advanced foundation level.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.

Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.

Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square

Recognise and sketch trigonometric functions and apply the sine rule and cosine rule and area formulae and use area and length measurements in radians. Apply differentiation to optimisation problems.

Differentiate from first principles, differentiate polynomial functions, differentiate trigonometric functions and exponential and logarithmic functions.

Use index laws and the laws of logarithms and apply them to situations involving exponential growth and decay.

Recognise and manipulate data using basic statisticalalgebraic and graphical techniques.

General Assessment Information

Choosing the Correct Level of Mathematics

It is recommended that all Foundation Students undertake mathematics as one of their electives because all undergraduate degrees will require some level of mathematical knowledge.

In the Foundation Program, students may undertake a General, Intermediate or Advanced Mathematics.A diagnostic test will be conducted in week one to assess the existing mathematical abilities of students. This test will not have a bearing on the marks you achieve in the course. However, students who do not perform satisfactorily in this exam may be advised to take General Mathematics (FPMT001) instead.

FPMT001 and FPMT002 (General Mathematics) is recommended for students who intend to do Arts degrees. Students wishing to gain admission into a business degree are advised to take FPMT003 and FPMT004 (Intermediate Mathematics) and FPMT005 and FPMT006 (Advanced Mathematics) is required as a minimum in financial mathematics, engineering and science programs at Macquarie University.

Students will be pre-enrolled into the level of maths that has been recommended for their preferred degree, however, a short diagnostic test will be carried out during the first week of classes to assess students' current skill levels and determine whether this level is suitable to their needs. Following the diagnostic test, it may be recommended that you take a different level of Mathematics.

Please note that the final mark obtained in all maths units is representative of the level of learning across the entire mathematics cohort (FPMT002/004/006).

Missed Assessments

The only exception to not sitting an in-class test or examination at the designated time or handing in an assessment on the due date is because of a serious or unavoidable disruption.

Students who miss a formal assessment held in class or a final examination due to a serious and unavoidable disruption which commenced after the start of the study period must lodge a Disruption to Studies Notification via ask.mq.edu.au within five (5) working days of the commencement of the disruption in order to apply for Special Consideration. The notification must be supported by appropriate evidence.

In submitting a Disruption to Studies Notification, a student is acknowledging that they may be required to undertake additional work. The time and date, deadline or format of any required extra assessable work as a result of a Disruption to Studies Notification is not negotiable. Further, in submitting a Disruption to Studies Notification, a student is agreeing to make themselves available so that they can complete any extra work as required.

Students will be advised of the outcome of their Disruption to Studies Application via ask.mq.edu.au.

Please refer to the Disruption to Studies Policy for further details.

Extensions & Late Submissions

To apply for an extension of time for submission of an assessment item, students must submit a notification of Disruptions to Studies via ask.mq.edu.au.

Grounds for extensions are usually serious illness, accident, disability, bereavement or other compassionate circumstances and must be substantiated with relevant evidence (e.g. professional authority form).

Late submissions without an approved extension will be penalised at a rate of **10% per day (weekend inclusive)**. This applies to assessments completed outside of class such as essays and assignments.

Final Examinations and Final Assessment Tasks

Final exams and final assessments typically take place in Week 13 and the first 3 days of week 14. You are expected to present yourself for examination at the time and place designated in the Final Examination Timetable. Please note that no special consideration will be given to students who have booked flights out of the country prior to the conclusion of the examination period.

The Final Examination Timetable will be available in provisional form on the MQC Student Portal Noticeboard at https://student.mqc.edu.au/NoticeBoard.htm in approximately week 10 of this Session. You will have 1 week to give feedback to the Student Administration Manager should you have concerns or note any clashes in your final exam timetable. From week 12, you will also be able to view your personal final exam timetable via the MQC Student Portal.

The examination timetable is produced to provide the maximum number of students with the least number of consecutive examinations. It is not uncommon for students of Macquarie

University at both the City and North Ryde Campuses to be required to sit two consecutive examinations. A maximum of three consecutive exams is also permitted (for example, two on one day, and one the following morning). However, no student is required to sit four consecutive exams and if any student discovers their examination timetable contains four consecutive exams, they should immediate*y* contact the Student Administration Manager to have an exam rescheduled.

Prior to the examination period, you should ensure that you are familiar with the Examination Rules. You can find these under Exam Information on the MQC Student Portal Noticeboard. A breach in any of these rules will lead to disciplinary action being undertaken.

Students who miss a final exam or final assessment will be awarded a mark of 0 for the task and cannot pass the unit, except for cases where a Disruption to Studies Notification is lodged and a Special Consideration is awarded. Please note that in submitting a Disruption to Studies Notification, a student is acknowledging that they may be required to undertake additional work. The time and date, deadline or format of any required extra assessable work as a result of a Disruption to Studies Notification is not negotiable.

Supplementary Examinations

Supplementary final examinations are held during the scheduled Supplementary Final exam Period in the lead up to the subsequent teaching period.

Please note that results for supplementary exams may not be available until the conclusion of Week 2 of the subsequent teaching session and until supplementary results are released, continuing students may be prevented from enrolling in certain units in the subsequent teaching session.

Students in their final semester of study who undertake supplementary final exams should note that Formal Completion of the Foundation Program will not be possible until supplementary results are released and this may impact on their ability to enrol subsequent programs of study on time.

Retention of Originals

It is the responsibility of the student to retain a copy of any work submitted and produce another copy of all work submitted if requested. Copies should be retained until after the release of final results each Session.

In the event that a student is asked to produce another copy of work submitted and is unable to do so, they may be awarded zero (0) for that particular assessment task.

The University also reserves the right to request and retain the originals of any documentation/ evidence submitted to support notifications of disruptions to studies. Requests for original documentation will be sent to the applicant's University email address within six (6) months of notification by the student. Students must retain all original documentation for the duration of this six (6) month period and must supply original documents to the University within ten (10) working days of such a request being made.

Turnitin

Students may be requested to submit assessments via Turnitin and in such instances any hard copies submitted without a Turnitin Report will not be marked.

Step by step guidance for Turnitin submissions can be found here. Should you experience any difficulties with Turnitin submission, please see a Lab Demonstrator in Lab 311 at MQC.

If you experience difficulties submitting through Turnitin on the due date, you must email your work in electronic format to your lecturer using the email address provided in the unit guide. Late submissions will be penalised at 10% per day.

Grading & Requirements to pass

This unit will use the following grading system:

- S – Satisfactory (50-100)
- F – Fail (0-49)

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy which is available at: http://www.mq.edu.au/policy/docs/grading/policy.html

To pass this unit, you must attempt all assessable components, demonstrate satisfactory performance in examinations and attain an overall mark of at least 50%. Failure to do so will result in an F (fail) grade being recorded.

Provision of Feedback

Marks awarded for assessment items will also be available on the MQC Student Portal within fourteen (14) days of the due date. Typically you will also be able to collect your submitted assignments in this same timeframe.

If you wish to receive further feedback from your instructor, you should contact them directly using the contact details provided in this guide.

Students may seek general feedback about their performance in a unit up to 6 months following results release.

Contacting Staff and Getting Help

Foundation students may approach teaching staff for one-on-one help in one of three ways:

- During Consultation sessions. For details about consultation sessions and Consultation times, please refer to timetabled provided on the Macquarie City Campus Portal Noticeboard.
- Using the "Questions for your instructor" dialogue provided in Week 0 of the respective unit in iLearn.
- Using the instructor's email address provided in the Unit Guide of the respective unit.

For all university related correspondence, students are required to use their official MQ student email account which may be accessed via the Macquarie University Student Portal. Enquiries from personal email accounts will not be replied to.

Assessment Tasks

Name	Weighting	Due
Test 1	20%	Week 4
Assignment	10%	Week 7
Test 2	20%	Week 10
Final Examination	50%	Exam Period

Test 1

Due: **Week 4**
Weighting: **20%**

The first task will be a written examination on the first 3 topics.

On successful completion you will be able to:
- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.
- Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.
- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square

Assignment

Due: **Week 7**
Weighting: **10%**

The second task will be an assignment which will be based on the first 6 topics with emphasis on topics 4, 5, and 6. Late submissions will be penalised at 10% per day.

On successful completion you will be able to:
- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.
- Solve linear equations, pairs of linear equations and coordinate geometry problems and

use matrix addition, subtraction, multiplication and inversion to solve these problems.

- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square

Test 2

Due: **Week 10**
Weighting: **20%**

The third task will be a written examination on the first 9 topics, with emphasis on topics 7, 8, and 9.

On successful completion you will be able to:

- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.
- Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.
- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square
- Recognise and sketch trigonometric functions and apply the sine rule and cosine rule and area formulae and use area and length measurements in radians. Apply differentiation to optimisation problems.
- Differentiate from first principles, differentiate polynomial functions, differentiate trigonometric functions and exponential and logarithmic functions.
- Use index laws and the laws of logarithms and apply them to situations involving exponential growth and decay.

Final Examination

Due: **Exam Period**
Weighting: **50%**

The final examination will cover all aspects of the course with emphasis on the later sections, especially 10, 11 and 12. The examination will be 3 hours in duration. The final exam will be held during the final examination period in either Week 13 or 14 at the City Campus.

On successful completion you will be able to:

- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.

- Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.

- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square

- Recognise and sketch trigonometric functions and apply the sine rule and cosine rule and area formulae and use area and length measurements in radians. Apply differentiation to optimisation problems.

- Differentiate from first principles, differentiate polynomial functions, differentiate trigonometric functions and exponential and logarithmic functions.

- Use index laws and the laws of logarithms and apply them to situations involving exponential growth and decay.

- Recognise and manipulate data using basic statisticalalgebraic and graphical techniques.

Delivery and Resources

Classes

Weekly contact will be 5 hours consisting of a 2 hour lecture, a 2 hour tutorial and 1 hour consultation session.

During Lectures, new content will typically be presented and explained by the lecturer. During tutorials participants will have more opportunities to engage in discussion and activities.

In the one-hour consultation session, students will be given individual guidance and assistance with their assessment and homework tasks and assignments. This hour is also an opportunity for students to engage in independent research and reading related to the unit, complete additional tasks to extend their knowledge of the field or catch up on any work they have missed.

Attendance of all three sessions (lectures, tutorials and consultation sessions) is compulsory and students must attend at least one consultation session per week.

Timetables for lectures and tutorials as well as consultation sessions can be found on the Noticeboard on the City Campus Student Portal.

If any scheduled class falls on a public holiday a make-up lesson may be scheduled, usually on a Saturday. Where appropriate, the instructor may instead organise an online make-up lesson which would require students to access online learning materials and/or complete activities outside of class rather than attending a make-up lesson. Scheduled make-up days are noted in the Teaching Schedule and attendance is taken for both weekend and online make-up lessons.

Learning and Teaching Activities

This unit will be taught will require students to complete set practical exercises based on material

discussed in lectures and tutorials. Students will be required to work independently as well as in small groups during class time.

It is expected that all students purchase the prescribed text and read in advance to ensure that they are well prepared for the content covered in each lecture.

iLearn will also be used to post lecture and tutorial materials and also communicate with students so it is expected that students will check this resource on a regular basis.

iLearn

iLearn is Macquarie's online learning management systems. The following unit specific information will be available on the website:

- Announcements
- Staff contact details
- Lecture notes and recordings
- Learning and teaching activities and resources
- Assessment information
- Tutorial questions and solutions
- Assessment submission tools such as Turnitin
- Other relevant material

Please note that you must enrol in a unit via eStudent in gain access to the unit in iLearn.

You are required to regularly check the website and use it as an information and resource centre to assist with your learning.

Ensure that when you have finished using the website, you log out. Failure to do so could allow unauthorised access to your account.

Please contact the IT helpdesk (Ph. 02 9850 4357) or lodge a ticket using OneHelp if you need assistance accessing iLearn.

Required and Recommended Texts and Materials

Prescribed textbook(s):

- *Maths in Focus, (2010) Second Edition, Mathematics Preliminary Course (Extension 1), Margaret Grove, Publisher McGraw Hill ISBN: 9780170226493*

Recommended textbook(s):

- *New Century Maths 11: Mathematics Workbook* , Trisha Brown and Robert Yen, Nelson Secondary 2006, ISBN-10: 0170130452, ISBN-13: 9780170130455
- *New Century Maths 12: Mathematics Workbook, Trisha Brown and Robert Yen, Nelson Secondary 2006,ISBN 978 0 17 013045*
- *New Century Extension 1 Maths 11: Mathematics Workbook ,Trisha Brown and Robert*

Yen, Nelson Secondary 2006,ISBN9780170130455

- *New Century Extension 1 Maths 12: Mathematics Workbook, Trisha Brown and Robert Yen, Nelson Secondary 2006,ISBN 978 0 17 013045 5*

- *Modern Statistics A graphical introduction McNeil and Middeldorp, Pearson Australia, ISBN 0733980309*

All prescribed textbooks will be made available to students to purchase at the Phillip Street Coop Bookshop.

Students can view a full list of textbooks for all units on the Macquarie City Campus Student Portal Noticeboard.

Technology Used and Required

- **Computer Access:** Outside of class, students will need access to a computer capable of running a recent spreadsheet package such as Microsoft EXCEL 2010/2007 as well as a word processing package such as Microsoft word 2010/2007 and internet access. This has been made available in all MQC computer laboratories. The data analysis package provided by Macquarie University as an add-in to Microsoft Excel may be used in conjunction with some statistics courses may be used in the computing lab at MQC.

- **Calculators:** Non- programmable calculators are an essential tool required in this unit and every student is expected to have an approved calculator. The CASIO fx-82AU PLUS or the CASIO fx-100AU are recommended. These calculators are in very common usage and can be obtained from the University Co-op bookshop, other bookshops and newsagents. Please see full list of Board of Studies approved calculators. Calculators with graphics capabilities or programmable calculators are not approved. MQC has an approved calculator policy. Please check with your lecturer. The use of non-approved calculators in examinations is banned and will incur a severe penalty.

- **iLearn**: iLearn will be utilised to put up lecture slides and additional resources, so students should login to http://ilearn.mq.edu.au on a regular basis.

Unit Schedule

Week Beginning:	Topic	Readings
Week 1 Mon 20 October	Basic algebra, percentages and equations of degree one. Forming equations and word equations.	A selection of questions from: Ex1.1, Ex1.3, Ex 1.5 numerical only, Ex1.8, Ex1.9. A selection of questions from questions from Ex2.1 to 2.6. Emphasis will be on the construction of equations from word equations.

Week 2 Mon 27 October	Solving linear equations, pairs of linear equations and coordinate Geometry	A selection of questions from Ex2.7 to 2.16. A selection of questions from: Ex3.2, Ex3.3, Ex 3.4, Ex3.5. A selection of exercises from Ch 7: Ex 7.1 to 7.7. Plane (coordinate geometry) including perpendicular distance will be developed in one lecture from an algebraic standpoint.
Week 3 Mon 3 November	Matrices and straight line graphs. **How to calculate the MQA** Introduction to the Macquarie University Average and sample calculations referring to required entry scores on http://www.foundationstudies.mq.edu.au/exit-requirements.html	Ex5.4. Solutions and their geometric interpretation will be taught in association. 2x2 Matrix material will be sourced from the Macquarie University file em02-im.pdf by Chen and Duong. Linear modelling will relate to commercial examples where cost is proportional to the number of items produced and the concept of fixed and variable costs treated here via a worksheet.
Week 4 Mon 10 November	Quadratic equations and graphing, modeling and optimisation.	Ch 3 Ex3.7 to Ex3.12. Ex 5.5. Ex9.1 and Ex9.2 to Ex 9.3. The use of symmetry will be emphasised and optimisation applications will be presented via worksheet. Completing the square will be emphasised over the formula for the purposed of graphing. **Test 1**
Week 5 Mon 17 November	Functions and curve sketching.	A selection of exercises from Ch 5 including Ex5.6, Ex5.7, Ex5.8. The emphasis will be on pattern recognition (shift and lift) transformation of basic shapes.
Week 6 Mon 24 November	Differentiation from first principles. Differentiation of polynomial functions. Laws of Differentiation.	A selection of exercises from Ex8.1 to Ex8.5 and Ex8.7 questions 1 and 2 and Ex 8.8 to 8.10. Differentiation via the limit of the difference quotient for quadratic and cubic polynomials will be developed.
Week 7 Mon 1 December	Index laws, the laws of logarithms and exponential growth and decay. Solving problems related to exponential growth and decay.	A selection of exercises from Ex1.5, Ex1.6. Surds, when encountered, should be treated as indices. Ex 3.6 **Assignment due**
Week 8 Mon 8 December	Trigonometric Functions sine rule and cosine rule and area. Emphasis is on the practical aspects such as bearings angle of elevation and depression and problems of a surveying nature are examined.	Ex 6.1 will be treated in some depth while Ex 6.2 will be presented purely as a calculator exercise. Right angled trig problems will be treated from a problem solving point of view so emphasis on examples for finding a side (Ex 6.3) and finding an angle (Ex 6.4) will be taught from a practical point of view as surveying exercise or calculating the pitch of a roof for example. Applications such as angles of elevation or depression and bearings Ex 6.5 will be emphasised. Non right angled trigonometry Ex 6.10 to Ex 6.13 will be emphasised however there will be no trigonometric (Pythagorean) identities or exact results presented.
Week 9 Mon 15 December	Differentiation of Trigonometric functions. Differentiation of Exponential and Logarithmic functions. A graphical approach with sine and cosine curves superimposed to introduce the derivative will be used before a limit is presented. Similarly by defining the exponential function as its Taylor series the tricks of limits in differentiation can be avoided while the inverse relationship between log and exponential functions allows the differentiation of log functions without recourse to first principles.	Worksheets and a selection from the Brown and Yen Yr 12 text specifically Chapter 4 exercise 7 and Chapter 3 exercise 6 questions 1-13 will be used here.

Week 10 Mon 22 December	Applications of differentiation to optimisation. The Higher School Certificate 2 unit examination provides a wealth of interesting problems and a selection of these problems dating back more than 30 years is available.	A selection of problems from the Yr 12 (HSC) Grove text specifically Ex 2.9 and Ex 2.10 **Test 2**
Week 11 Mon 5 January	Data using basic statistical techniques Graphical techniques in statistics. Practice final exam paper.	Exercises concerning measures of central tendency and measures of spread namely mean, median, mode, range, IQR and SD from p77 of Modern Statistics, A graphical introduction. It is envisaged that laboratory time may be required here. Histograms, box plots, stem and leaf plots taken from p47 of Modern Statistics, A graphical introduction.
Week 12 Mon 12 January	To calculate standard deviation and use the normal distribution and standard normal distribution in conjunction with Z scores to compare distributions. To apply standard deviation concepts to problem solving.	The student will be able to calculate standard deviation and use the normal distribution and standard normal distribution in conjunction with Z scores to compare distributions. To apply standard deviation concepts to problem solving.
Week 13 Mon 19 January	A review of the course with emphasis on examination preparation will be conducted **Final Exam** (Final Exams may be Held in Week 13 or 14, during the scheduled final exam period. Please refer to the Information Provided on the Portal Noticeboard).	

Other Important Dates

Public holidays & make-up days

New Year's Day Make-up: Saturday 20 December

(Please note that online lessons may be organised in lieu of make-up day).

Session Break

Thursday 25 December 2014 – Thursday 1 January 2015 inclusive

Exam Period:

Monday 19 January 2015 – Wednesday 28 January 2015 (Sat & Sun excluded)

Please note all final exams will be held in the City Campus.

Results Release:

Session 3 2014 results are scheduled to be released to students via e-Student and MQC Student Portal on Friday 13 February 2015

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.ht

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Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Academic Honesty

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Further information on the academic honesty and schedule of penalties that will apply to breaches please consult the Academic Honesty Policy.

If you are unsure about how to incorporate scholarly sources into your own work, please speak to your Instructor or the Student Services team well in advance of your assessment. You may also enrol in StudyWise or visit the University's Library Webpage for more resources.

Final Examination Script Viewings and Grade Appeals

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade and/or viewing your final exam script please refer to http://www.city.mq.edu.au/new_and_current_students/appeals/ for information about associated cut off dates.

Please note that any requests to view exam papers must be booked in immediately following results release.

Before submitting a Grade Appeal, please ensure that you read the Grade Appeal Policy and

noted valid grounds for appeals.

Attendance

Please refer to the Attendance Policy for Foundation Students.

A minimum level of 80% attendance is compulsory for all classes, including consultation sessions and any make-up classes scheduled on weekends. Attendance will be recorded in every lesson and note made of any lateness or period of absence from class.

Where a student is present for only for a minor portion of a lesson (for example arrives late, leaves early, leaves the class frequently or for lengthy periods, engages in inappropriate or unrelated activities or does not participate actively in the majority of the lesson) the instructor reserves the right to mark a student absent for that particular lesson and make note of such incidents.

Students should note that absenteeism (including partial absenteeism) not only has a negative impact on not only their overall attendance record and their academic progress, but could also have ramifications for their visas or eligibility for social benefits where relevant.

In cases of unavoidable non-attendance due to illness or circumstances beyond control, students are advised to lodge a Disruption to Studies Notification via ask.mq.edu.au even if they have not missed a formal assessment task so that appropriate records of the reasons for unavoidable attendance can be made on their record.

Course Progression

Macquarie City Campus monitors Foundation students' course progress. Please refer to the Course Progress Policy.

To maintain satisfactory program performance students are required to pass 50% or more of their enrolled units in each session.

Students who fail to make satisfactory course progress will be classified as "at risk" students and may have conditions placed upon their enrolment.

International students must comply with the Course Progress policy in order to meet the conditions of their visa.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students

- Ask a Learning Adviser

Student Support at Macquarie City Campus

Macquarie City Campus students who require assistance or support are encouraged to contact Student Services (studentadvisor@city.mq.edu.au) or make an appointment to see a student advisor at Reception on Level 2.

Macquarie University Campus Wellbeing services are also available at the City Campus. If you would like to make an appointment, please email info@city.mq.edu.au or visit their website at: http://www.campuslife.mq.edu.au/campuswellbeing.

Academic Support at Macquarie City Campus

Macquarie city campus provides free tutoring / support classes to its student. Support is available for Accounting, numeracy and essay and report writing, research presentation and referencing skills.

Students who are experiencing difficulties in these areas are advised to attend these classes on a drop-in basis. So that the tutor can assist best, students must bring the work (e.g. assignment draft, essay draft, homework problem) with which that they are having difficulties.

For further information about tutoring services, please refer to the City Campus Portal Noticeboard under Timetables, Tutor Availability.

If you require additional support with university skills, you may also consider enrolling in UNIWISE. UNIWISE is an iLearn resource which provides:

- Online learning resources and academic skills workshops
- What is expected of you as a student at Macquarie University
- Personal assistance with your learning & study related questions
- Key strategies and tips that you can use to achieve successful learning both in and out of the classroom
- The definitions and examples of the types of assignments you will encounter in your units

Additional study spaces are also available on Level 1.

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

When using the University's IT, you must adhere to the Acceptable Use Policy. The policy applies to all who connect to the MQ network including students.

If you need IT support with any of the Macquarie University Systems please see http://informatics.mq.edu.au/help/, lodge a One Help ticket or call 02 9850-4357.

Students must use their Macquarie University email addresses to communicate with staff as it is University policy that the University issued email account is used for official University communication.

IT Help at Macquarie City Campus

A lab demonstrator is situated in Lab 311 and can help you with any usage of university systems or resetting your password.

You may also refer to the Online Systems Password Document which has been made available on the City Campus Student Portal Noticeboard.

Whilst utilising the City Campus IT facilities, students are expected to act responsibly. The following regulations apply to the use of computing facilities and online services:

- Accessing inappropriate web sites or downloading inappropriate material is not permitted.
- Material that is not related to coursework for approved unit is deemed inappropriate.
- Downloading copyright material without permission from the copyright owner is illegal, and strictly prohibited. Students detected undertaking such activities will face disciplinary action, which may result in criminal proceedings.

Non-compliance with these conditions may result in disciplinary action without further notice.

Equipment available for loan

Students may borrow headphones for use in the Macquarie City Campus computer labs (210, 307, 311, 608) or a video recorder.

Please ask at Level 2 Reception for details. You will be required to provide your MQC Student ID card which will be held as a deposit while using the equipment.

Graduate Capabilities

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where

relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.

- Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.

- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square

- Recognise and sketch trigonometric functions and apply the sine rule and cosine rule and area formulae and use area and length measurements in radians. Apply differentiation to optimisation problems.

- Differentiate from first principles, differentiate polynomial functions, differentiate trigonometric functions and exponential and logarithmic functions.

- Use index laws and the laws of logarithms and apply them to situations involving exponential growth and decay.

- Recognise and manipulate data using basic statisticalalgebraic and graphical techniques.

Assessment tasks

- Test 1
- Assignment
- Test 2
- Final Examination

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.
- Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.
- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square
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- Use index laws and the laws of logarithms and apply them to situations involving exponential growth and decay.
- Recognise and manipulate data using basic statisticalalgebraic and graphical techniques.

Assessment tasks

- Test 1
- Assignment
- Test 2
- Final Examination

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Use percentages and a scientific calculator effectively and use the basic operations of algebra to solve equations of degree one.
- Solve linear equations, pairs of linear equations and coordinate geometry problems and use matrix addition, subtraction, multiplication and inversion to solve these problems.

- Solve, interpret and graph quadratic equations and sketch standard functions, use them in modelling and optimisation (polynomial maxima and minima) problems by factorisation and completing the square

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Assessment tasks

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- Assignment
- Test 2
- Final Examination

Changes since First Published

Date	Description
30/ 10/ 2014	To pass this unit, you must attempt all assessable components, demonstrate satisfactory performance in examinations and attain an overall mark of at least 50%. Failure to do so will result in an F (fail) grade being recorded.
28/ 10/ 2014	To pass this unit, you must attempt all assessable components of the unit, pass the final exam and attain an overall mark of at least 50%. Failure to do so will result in an F (fail) grade being recorded.