



# MATH704

## Research Topics in Mathematics 1

S2 Day 2016

*Dept of Mathematics*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff Unit Convenor Jim Denier <a href="mailto:jim.denier@mq.edu.au">jim.denier@mq.edu.au</a> Contact via <a href="mailto:jim.denier@mq.edu.au">jim.denier@mq.edu.au</a> By appointment
Credit points 4
Prerequisites Admission to MRes
Corequisites
Co-badged status
Unit description This unit is study of a current topic of Mathematical research. In addition to mastering the material delivered in lectures, the student will be required to undertake independent reading and write a short report on what they have learned. This will be written using LaTeX, with instruction in this typesetting language and BibTeX as part of the unit's curriculum.

## 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:

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- Expressing yourself clearly and logically in writing.
- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

## Assessment Tasks

Name	Weighting	Due
<a href="#"><u>Assignment 1</u></a>	20%	TBA
<a href="#"><u>Assignment 2</u></a>	20%	TBA
<a href="#"><u>Final Exam</u></a>	60%	Examination period

### Assignment 1

Due: **TBA**

Weighting: **20%**

One of two assignments which will allow students to test their mastering and depth of understanding of the material covered in lectures.

On successful completion you will be able to:

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- Expressing yourself clearly and logically in writing.
- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

### Assignment 2

Due: **TBA**

Weighting: **20%**

The second of two assignments which will allow students to test their mastering and depth of understanding of the material covered in lectures.

On successful completion you will be able to:

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- Expressing yourself clearly and logically in writing.
- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

analysis, problem solving and creative thinking.

## Final Exam

Due: **Examination period**

Weighting: **60%**

A three-hour examination assessing material covered during the semester. The exam will be held in the Department during the official examination period.

On successful completion you will be able to:

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- Expressing yourself clearly and logically in writing.
- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

## Delivery and Resources

This unit will be delivered through the AMSI Access Grid. Copies of handwritten lecture notes will be made available to students prior to the lectures commencing. All communication for the unit will be offered through the blended learning environment (Ed). Details of this will be provided to students.

## Unit Schedule

Weekly lecture: Tuesdays 10-12.

## Learning and Teaching Activities

### Lecture

2 hours per week

### Revision questions

Given out after each lecture

## 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.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

**New Assessment Policy in effect from Session 2 2016** <http://mq.edu.au/policy/docs/assessm>

[ent/policy\\_2016.html](#). For more information visit [http://students.mq.edu.au/events/2016/07/19/new\\_assessment\\_policy\\_in\\_place\\_from\\_session\\_2/](http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/)

Assessment Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/grading/policy.html>

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

Complaint Management Procedure for Students and Members of the Public [http://www.mq.edu.au/policy/docs/complaint\\_management/procedure.html](http://www.mq.edu.au/policy/docs/complaint_management/procedure.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](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/](https://students.mq.edu.au/support/student_conduct/)

## Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au).

## 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](http://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 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](http://ask.mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

#### Learning outcome

- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

#### Assessment tasks

- Assignment 1
- Assignment 2
- Final Exam

### PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

#### Learning outcomes

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- Expressing yourself clearly and logically in writing.

- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

## Assessment tasks

- Assignment 1
- Assignment 2
- Final Exam

## PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

## Learning outcomes

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- Expressing yourself clearly and logically in writing.
- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

## Assessment tasks

- Assignment 1
- Assignment 2
- Final Exam

## PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

## Learning outcomes

- Understanding logical arguments and recognising any gaps or faults in such arguments.
- Solving problems, including: formulating a precise mathematical question from a "real world" problem; identifying and applying appropriate mathematical techniques.
- More broadly, you are expected to improve your generic skills in the following areas: literacy and numeracy, self-awareness and interpersonal skills, communications, critical analysis, problem solving and creative thinking.

## Assessment tasks

- Assignment 1
- Assignment 2
- Final Exam

## PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

## Learning outcome

- Expressing yourself clearly and logically in writing.

## Assessment tasks

- Assignment 1
- Assignment 2
- Final Exam