



MATH705

Research Topics in Mathematics 2

S2 Day 2014

Mathematics

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General Information

Unit convenor and teaching staff

Unit Convenor

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Unit convenor

Paul Smith

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit is study of a current topic of Mathematical research. As a preparation for life as a researcher, part of the assessment in this unit will be based on oral presentations by the student. The unit will be based around a mixture of standard lectures and student seminars.

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:

Knowledge of the principles and concepts of aspects of functional analysis and its applications.

Understanding of the breadth of applied functional analysis, its role in other fields, and the way these fields contribute to the development of the mathematical sciences.

Ability to construct logical, clearly presented and justified mathematical arguments incorporating deductive reasoning.

Ability to formulate and model practical and abstract problems in mathematical terms amenable to solution by the application of a variety of methods in functional analysis. Application of mathematical principles in functional analysis, concepts, techniques and technology to solve practical and abstract problems.

Appropriate interpretation of information communicated in mathematical form.

Appropriate presentation of information, reasoning and conclusions in a variety of modes, to diverse audiences (expert and non-expert).

Ethical application of mathematical approaches to solving problems.

Ability to work effectively, responsibly and safely in an individual or team context.

Assessment Tasks

Name	Weighting	Due
assignments 1 and 2	33%	weeks 4,6
assignments 3 and 4	33%	weeks 8,10
assignment 5	34%	week 12

assignments 1 and 2

Due: **weeks 4,6**

Weighting: **33%**

Assignments

On successful completion you will be able to:

- Knowledge of the principles and concepts of aspects of functional analysis and its applications.
- Understanding of the breadth of applied functional analysis, its role in other fields, and the way these fields contribute to the development of the mathematical sciences.
- Ability to construct logical, clearly presented and justified mathematical arguments incorporating deductive reasoning.
- Ability to formulate and model practical and abstract problems in mathematical terms amenable to solution by the application of a variety of methods in functional analysis.
- Application of mathematical principles in functional analysis, concepts, techniques and technology to solve practical and abstract problems.
- Appropriate interpretation of information communicated in mathematical form.
- Appropriate presentation of information, reasoning and conclusions in a variety of

modes, to diverse audiences (expert and non-expert).

- Ethical application of mathematical approaches to solving problems.
- Ability to work effectively, responsibly and safely in an individual or team context.

assignments 3 and 4

Due: **weeks 8,10**

Weighting: **33%**

Assignment

On successful completion you will be able to:

- Knowledge of the principles and concepts of aspects of functional analysis and its applications.
- Understanding of the breadth of applied functional analysis, its role in other fields, and the way these fields contribute to the development of the mathematical sciences.
- Ability to construct logical, clearly presented and justified mathematical arguments incorporating deductive reasoning.
- Ability to formulate and model practical and abstract problems in mathematical terms amenable to solution by the application of a variety of methods in functional analysis.
- Application of mathematical principles in functional analysis, concepts, techniques and technology to solve practical and abstract problems.
- Appropriate interpretation of information communicated in mathematical form.
- Appropriate presentation of information, reasoning and conclusions in a variety of modes, to diverse audiences (expert and non-expert).
- Ethical application of mathematical approaches to solving problems.
- Ability to work effectively, responsibly and safely in an individual or team context.

assignment 5

Due: **week 12**

Weighting: **34%**

Assignment

On successful completion you will be able to:

- Knowledge of the principles and concepts of aspects of functional analysis and its applications.
- Understanding of the breadth of applied functional analysis, its role in other fields, and the way these fields contribute to the development of the mathematical sciences.

- Ability to construct logical, clearly presented and justified mathematical arguments incorporating deductive reasoning.
- Ability to formulate and model practical and abstract problems in mathematical terms amenable to solution by the application of a variety of methods in functional analysis.
- Application of mathematical principles in functional analysis, concepts, techniques and technology to solve practical and abstract problems.
- Appropriate interpretation of information communicated in mathematical form.
- Appropriate presentation of information, reasoning and conclusions in a variety of modes, to diverse audiences (expert and non-expert).
- Ethical application of mathematical approaches to solving problems.
- Ability to work effectively, responsibly and safely in an individual or team context.

Delivery and Resources

Wednesdays 10am to 12 pm in E7A 333. However the first five weeks will have an irregular schedule.

Unit Schedule

Wednesdays 10am to 12 pm in E7A 333. However the first five weeks will have an irregular schedule.

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

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/

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 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.