



MATH7900

Research Frontiers in Mathematics

Session 1, In person-scheduled-weekday, North Ryde 2025

School of Mathematical and Physical Sciences

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General Information

Unit convenor and teaching staff

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Credit points

10

Prerequisites

Admission to GradDipResFSE or GradCertResFSE

Corequisites

Co-badged status

Unit description

This unit is designed to engage students with current research in Mathematics. It will introduce students to a number of the current open research questions across the range of the broad discipline. It is the first of a pair of such units, with the second appearing in the second year of the MRes program. This unit addresses research across the breadth of the discipline, while the second unit will focus on more particular issues related to the student's project area.

Activities may include such things as seminar attendance, directed reading of research papers, the discussion and critiquing of research topics and introduction to new practical techniques with preparatory reading, hands-on experience and a final report. Presentation of a seminar and a written report based on the topics examined are required for completion of this unit.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Industry, Innovation and Infrastructure

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:

ULO1: Search for current literature in your field, and reference your findings appropriately.

ULO2: Typeset mathematics using LaTeX and BibTeX systems.

ULO3: Write academic mathematics in a clear and logical manner.

ULO4: Present research in your field so that non-experts can understand the work.

ULO5: Critically reflect on your current knowledge and transferability of these in relation to your career aspirations inside and/or outside academia

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Presentation</u>	20%	No	Week 11 or 12
<u>Career Development Plan</u>	10%	No	n/a
<u>Literature review</u>	40%	No	Week 13
<u>Assignment</u>	20%	No	Week 4 or 5
<u>Seminar/Colloquium Engagement</u>	10%	No	ongoing

Presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 20 hours

Due: **Week 11 or 12**

Weighting: **20%**

Present current research in your field, based on your directed reading.

On successful completion you will be able to:

- Search for current literature in your field, and reference your findings appropriately.
- Typeset mathematics using LaTeX and BibTeX systems.
- Present research in your field so that non-experts can understand the work.
- Critically reflect on your current knowledge and transferability of these in relation to your career aspirations inside and/or outside academia

Career Development Plan

Assessment Type ¹: Plan

Indicative Time on Task ²: 7 hours

Due: **n/a**

Weighting: **10%**

You will develop a professional development plan based on the career goals and aspirations you have identified in the goals and needs assessment.

On successful completion you will be able to:

- Critically reflect on your current knowledge and transferability of these in relation to your career aspirations inside and/or outside academia

Literature review

Assessment Type ¹: Literature review

Indicative Time on Task ²: 35 hours

Due: **Week 13**

Weighting: **40%**

Write a review of current literature in your field of research, based on your directed reading.

On successful completion you will be able to:

- Search for current literature in your field, and reference your findings appropriately.
- Typeset mathematics using LaTeX and BibTeX systems.
- Write academic mathematics in a clear and logical manner.
- Critically reflect on your current knowledge and transferability of these in relation to your career aspirations inside and/or outside academia

Assignment

Assessment Type ¹: Problem set

Indicative Time on Task ²: 30 hours

Due: **Week 4 or 5**

Weighting: **20%**

Written solutions to exercises based on lecture material, including typesetting examples.

On successful completion you will be able to:

- Typeset mathematics using LaTeX and BibTeX systems.

Seminar/Colloquium Engagement

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 10 hours

Due: **ongoing**

Weighting: **10%**

Students will complete short reports on research topics as presented during seminars. The School of Mathematical and Physical Sciences will host several seminars and students are encouraged to also seek out and attend other relevant seminars. Please consult the Unit Guide for further information

On successful completion you will be able to:

- Present research in your field so that non-experts can understand the work.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Classes

Lectures (starting Week 1): There will be a one-hour lecture each week. Students must create an Overleaf account. Approximately 50% of the classes will be held on campus, with the remaining 50% conducted via Zoom.

Suggested Textbook

The following textbook serves as a supplementary resource, providing additional explanations and exercises. It is available in PDF format through the Macquarie University library:

- **Grätzer, George.** *More Math Into LaTeX* (4th ed.). New York: Springer, 2007.

Communication

All course-related communication will be sent to your university email. Please check it regularly.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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 connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

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

The Writing Centre

The [Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the [Service Connect Portal](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit 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.

Unit information based on version 2025.06 of the [Handbook](#)