



# MATH399

## Participation and Community Engagement in Mathematics

S2 Day 2018

*Dept of Mathematics*

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#### Disclaimer

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## General Information

Unit convenor and teaching staff

Catherine Penington

[catherine.penington@mq.edu.au](mailto:catherine.penington@mq.edu.au)

717, 12 Wally's Walk

Frank Schoenig

[frank.schoenig@mq.edu.au](mailto:frank.schoenig@mq.edu.au)

Credit points

3

Prerequisites

(MATH235 or MATH232) and permission by special approval

Corequisites

MATH236

Co-badged status

Unit description

This unit provides an opportunity for students to engage with the community through a variety of activities centered on communicating mathematical ideas to a range of students. Examples might include individual or group activities with educational institutions, not for profit organisations and public sector partners. The unit promotes learning through participation with community partners as well as the development of graduate capabilities and professional skills. Students will be encouraged to apply knowledge learnt through their degree to helping others understand mathematical concepts and develop as mathematical thinkers. Student learning will be facilitated through orientation and induction activities, scaffolding for skill and knowledge development and debriefing and supported throughout by rigorous academic assessment.

## 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:

Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.

Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.

Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.

Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.

Improve ability to work cooperatively as a team member and independently.

Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Skills Checklist</u>	5%	No	See iLearn
<u>Oral Presentation</u>	30%	No	Week 11 or Week 12
<u>Final Report and Reflection</u>	55%	No	End of Session (See iLearn)
<u>Tutorial Contributions</u>	10%	No	Weeks 1 to 12

### Skills Checklist

Due: **See iLearn**

Weighting: **5%**

A self-reflection of current skills, and how they might translate into work skills.

On successful completion you will be able to:

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.

### Oral Presentation

Due: **Week 11 or Week 12**

Weighting: **30%**

A presentation on "The use of mathematics in a real world field". Experience gained during your activity should help you to choose an appropriate topic.

On successful completion you will be able to:

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
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- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.

## Final Report and Reflection

Due: **End of Session (See iLearn)**

Weighting: **55%**

A report on the PACE activity.

On successful completion you will be able to:

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- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.
- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.
- Improve ability to work cooperatively as a team member and independently.
- Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

## Tutorial Contributions

Due: **Weeks 1 to 12**

Weighting: **10%**

Contribute to the tutorial discussions on career choices, ethics, social inclusion and reflective practice.

On successful completion you will be able to:

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.
- Improve ability to work cooperatively as a team member and independently.
- Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

## Delivery and Resources

1. MATH399 is available through internal (on campus) mode only. The unit involves a series of workshops/seminars, online learning and a PACE activity. Students should note that the required activities for MATH399 will vary from week to week depending on the nature of the delivery (in- class or online) and the timing of the PACE activity. Please refer to the unit schedule throughout the semester to confirm delivery mode (i.e. in class or online) at any given time. If there are any changes the convenor will contact the students via email. When in class workshops are carried out (Note: the hours associated with the PACE activity will be scheduled separately) they will be held as follows:

MONDAYS, 14:00 - 16:00 in 12 Second Way, Room 307

PACE units in Science and Engineering, their Unit Convenors, and their students, are supported by a PACE Team within the Faculty. Throughout the unit offering, members of the Team may be in contact with students to provide or collect information. If you have any questions about PACE in Science and Engineering, please email: [pace.science@mq.edu.au](mailto:pace.science@mq.edu.au) or visit the following webpages: <https://students.mq.edu.au/experience/practical-experience/pace-experience/how-do-i-start/pace-in-the-faculty-of-science-and-engineering>

If you require more information about PACE in general or access to forms such as those for the PACE Travel Grants, please go to:

<https://students.mq.edu.au/experience/practical-experience/pace-experience>

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central/) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central/>). 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

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

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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

### Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

### Learning outcomes

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.
- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.
- Improve ability to work cooperatively as a team member and independently.

### Assessment tasks

- Skills Checklist
- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

### Learning outcomes

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.
- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.
- Improve ability to work cooperatively as a team member and independently.
- Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

### Assessment tasks

- Skills Checklist
- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

### Learning outcomes

- Facilitate a connection between theoretical learning and the application of that



mathematical concept in practice.

- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.

## **Assessment tasks**

- Skills Checklist
- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## **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**

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.

## **Assessment tasks**

- Skills Checklist
- Oral Presentation
- Final Report and Reflection

## **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

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.

## Assessment tasks

- Skills Checklist
- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## 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

- Facilitate a connection between theoretical learning and the application of that mathematical concept in practice.
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.

## Assessment tasks

- Skills Checklist
- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms

effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

## **Learning outcomes**

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Improve ability to work cooperatively as a team member and independently.
- Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

## **Assessment tasks**

- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## **Engaged and Ethical Local and Global citizens**

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

## **Learning outcomes**

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills.
- Enhance critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience.
- Improve ability to work cooperatively as a team member and independently.
- Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

## Assessment tasks

- Skills Checklist
- Oral Presentation
- Final Report and Reflection
- Tutorial Contributions

## Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

## Learning outcome

- Discuss ethical and social inclusion/inter-cultural understanding of working in a professional environment.

## Assessment tasks

- Final Report and Reflection
- Tutorial Contributions

## Changes from Previous Offering

To improve the outcomes for both students and partner organisations, the hours for the PACE activity have been increased from last year. Your PACE activity should take 70 hours (equivalent to two weeks full time, with the exact working times to be arranged to suit the student and the partner). This means that there will be fewer workshops, which will all be focussed on building a career outside of university.