



# MATH399

## Participation and Community Engagement in Mathematics

S2 Day 2015

*Dept of Mathematics*

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#### Disclaimer

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## General Information

Unit convenor and teaching staff

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Credit points

3

Prerequisites

(MATH235 or MATH232) and permission of Executive Dean of Faculty

Corequisites

MATH236

Co-badged status

Unit description

This unit provides an opportunity for students to engage with the community through a variety of activities centred 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:

Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field

beyond university

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

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

Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work

Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally

Recognise how their engagement with the community has facilitated mutually beneficial opportunities for the generation and the sharing of mathematical knowledge.

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

## Assessment Tasks

Name	Weighting	Due
<u>Assessment 1</u>	5%	Week 2
<u>Assessment 3</u>	15%	Week 8
<u>Assessment 4</u>	20%	Weeks 11 and 12
<u>Assessment 5</u>	45%	Week 13
<u>Assessment 6</u>	15%	Weeks 3 to 12

### Assessment 1

Due: **Week 2**

Weighting: **5%**

Skills Checklist

On successful completion you will be able to:

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

## Assessment 3

Due: **Week 8**

Weighting: **15%**

Graduate Capabilities Report

On successful completion you will be able to:

- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally
- Recognise how their engagement with the community has facilitated mutually beneficial opportunities for the generation and the sharing of mathematical knowledge.

## Assessment 4

Due: **Weeks 11 and 12**

Weighting: **20%**

Oral Presentation

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, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Facilitate a connection between theoretical learning and the application of that mathematical content in practice.

## Assessment 5

Due: **Week 13**

Weighting: **45%**

Final Report and Reflection

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, all of which will be important for communicating within the mathematical field beyond university
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally
- Recognise how their engagement with the community has facilitated mutually beneficial opportunities for the generation and the sharing of mathematical knowledge.

## Assessment 6

Due: **Weeks 3 to 12**

Weighting: **15%**

Contribute to tutorial discussions on topics including historical aspects of mathematics, current mathematics research, well known mathematicians, mathematics in the sciences as well as teaching and learning, reflection, ethics in mathematics and social inclusion.

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, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally
- Facilitate a connection between theoretical learning and the application of that mathematical content in practice.

## Delivery and Resources

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:

TUESDAYS, 10 am - 12 pm in W5C 301

## Unit Schedule

Week	Workshops	Mode of delivery	PACE Activity	Assessment
1	Introduction PACE activity Overview Skills Audit	Classroom		
2	Tutoring/Mentoring	Classroom	PACE activities may commence	Skills Audit Due 7 Aug by 17:00
3	Assessing your peers	Classroom		
4	Reflective Practice	Classroom		
5	Maths and Ethics	Classroom		Peer Assessment and Self-Evaluation Due 4 Sep by 17:00
6	Social Inclusion	Classroom		Peer Assessment and Self-Evaluation Due 4 Sep by 17:00
7	Mathematical Content	Classroom		
8	Mathematical Content	Classroom		Graduate Capabilities report Due 2 Oct by 17:00
9	Mathematical Content	Classroom		
10	Mathematical Content	Classroom		
11	Oral presentations	Classroom		Oral Presentations Due in class starting 20 Oct
12	Oral Presentations	Classroom		
13	Wrap up and debrief	Classroom		Final Report Due 6 Nov at 17:00

## 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)

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](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](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://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.

## 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

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally

### Assessment tasks

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

### 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**

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally

## **Assessment tasks**

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## **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**

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field beyond university

- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally

## **Assessment tasks**

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## **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**

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally
- Recognise how their engagement with the community has facilitated mutually beneficial

opportunities for the generation and the sharing of mathematical knowledge.

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

## **Assessment tasks**

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## **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**

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Facilitate a connection between theoretical learning and the application of that mathematical content in practice.

## **Assessment tasks**

- Assessment 1
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- Assessment 4
- Assessment 5
- Assessment 6

## 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

- Establish effective communication skills for diverse audiences in the communication of mathematical skills and ideas. This will include written, oral, and visual communication skills, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Facilitate a connection between theoretical learning and the application of that mathematical content in practice.

### Assessment tasks

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## 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, all of which will be important for communicating within the mathematical field beyond university

- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Discuss ethical and social inclusion/inter-cultural understanding of communicating mathematics professionally
- Recognise how their engagement with the community has facilitated mutually beneficial opportunities for the generation and the sharing of mathematical knowledge.

## **Assessment tasks**

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## **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, all of which will be important for communicating within the mathematical field beyond university
- Identify a variety of mathematical problems and devise appropriate mathematical techniques for solving those problems
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Recognise how their engagement with the community has facilitated mutually beneficial opportunities for the generation and the sharing of mathematical knowledge.

## **Assessment tasks**

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## **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 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, all of which will be important for communicating within the mathematical field beyond university
- Enhance their critical analytical and integrative thinking skills through self reflection, peer assessment, and practical experience
- Improve their ability to work cooperatively as a team member and independently, which is a common context for mathematical work
- Recognise how their engagement with the community has facilitated mutually beneficial opportunities for the generation and the sharing of mathematical knowledge.

## **Assessment tasks**

- Assessment 1
- Assessment 3
- Assessment 4
- Assessment 5
- Assessment 6

## Changes since First Published

Date	Description
26/ 08/ 2015	A change has been made to the assessment schedule. All enrolled students were consulted before the change was made and agreed that the change improved the structure of the unit.