



MATH399

Participation and Community Engagement in Mathematics

S2 Day 2016

Dept of Mathematics

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General Information

Unit convenor and teaching staff

Lecturer

Elena Vynogradova

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ANN L2

By appointment

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 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:

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 2</u>	15%	Week 9
<u>Assessment 3</u>	20%	Weeks 11 and 12
<u>Assessment 4</u>	45%	Week 13
<u>Assessment 5</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 2

Due: **Week 9**

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 3

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

Assessment 4

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
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Assessment 5

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:

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- 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:

MONDAYS, 11 am - 1 pm in W5A 204

Unit Schedule

Week	Workshops	Mode of delivery	PACE Activity	Assessment
1	Introduction PACE activity Overview Skills Audit	Classroom		
2	Careers talk on CVs and cover letters	Classroom	PACE activities may commence	Skills Audit Due 8 Aug by 17:00
3	Introduction to teaching in a tertiary context	Classroom		
4	Reflective Practice	Classroom		
5	Maths and Ethics	Classroom		
6	Social Inclusion	Classroom		
7	Mathematical Content	Classroom		
8	Mathematical Content	Classroom		
9	Mathematical Content	Classroom		Graduate Capabilities report Due 10 Oct by 17:00
10	Mathematical Content	Classroom		
11	Oral presentations	Classroom		Oral Presentations Due in class starting 24 Oct
12	Oral Presentations	Classroom		
13	Wrap up and debrief	Classroom		Final Report Due 7 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

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit 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

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/

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.

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://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

- 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
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Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- Assessment 5

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
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- Assessment 4
- Assessment 5

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
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Assessment tasks

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- Assessment 2
- Assessment 3
- Assessment 4
- Assessment 5

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.
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Assessment tasks

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- Assessment 4
- Assessment 5

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.

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- Assessment 4
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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
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- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- Assessment 5

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
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Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- Assessment 5

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 2
- Assessment 3
- Assessment 4
- Assessment 5

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 2
- Assessment 3
- Assessment 4

- Assessment 5