EDUC258

Mathematics in Schools

S3 External 2014

Education

Contents

General Information

Unit convenor and teaching staff
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Credit points
3

Prerequisites
EDUC105 or (admission to GDipEd or BEd(Prim) or BEd(Sec))

Corequisites
EDUC106 or (admission to GDipEd or BEd(Prim) or BEd(Sec))

Co-badged status

Unit description
This unit is designed for intending primary teachers and intending secondary mathematics teachers. It focuses on the factors affecting school students' learning of mathematics. Three major themes are addressed: the meaning of selected basic concepts; how students learn these basic concepts; and how teaching can influence student learning. There is a common lecture strand which examines current research perspectives on learning and teaching mathematics in schools, and separate tutorial classes for intending primary and secondary teachers. The external offering is only available to intending primary teachers.

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:

Demonstrate knowledge and understanding of research into how students learn certain

fundamental mathematical ideas and the implications for teaching.
Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
Demonstrate knowledge and understanding of numeracy teaching strategies and their application in teaching areas.
Demonstrate understanding of the content covered in online learning activities and on-campus workshops.

Assessment Tasks

Name	Weighting	Due
Contribution to online learnin	15%	See unit guide for dates
Quiz 1	10%	Week 2 on-campus workshop
Quiz 2	15%	Week 4 on-campus workshop
Numeracy Interview	30%	7/01/2015
Final examination	30%	Exam period

Contribution to online learnin

Due: **See unit guide for dates**
Weighting: **15%**

Complete all of the online learning tasks for each module by the due dates.

On successful completion you will be able to:

- Demonstrate knowledge and understanding of research into how students learn certain fundamental mathematical ideas and the implications for teaching.
- Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
- Demonstrate understanding of the content covered in online learning activities and on-campus workshops.

Quiz 1

Due: **Week 2 on-campus workshop**
Weighting: **10%**

A written quiz on the content of Module 1.

On successful completion you will be able to:

- Demonstrate knowledge and understanding of research into how students learn certain fundamental mathematical ideas and the implications for teaching.
- Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
- Demonstrate understanding of the content covered in online learning activities and on-campus workshops.

Quiz 2

Due: **Week 4 on-campus workshop**
Weighting: **15%**

A written quiz on the content of Modules 2 and 3.

On successful completion you will be able to:

- Demonstrate knowledge and understanding of research into how students learn certain fundamental mathematical ideas and the implications for teaching.
- Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
- Demonstrate understanding of the content covered in online learning activities and on-campus workshops.

Numeracy Interview

Due: **7/01/2015**
Weighting: **30%**

Interpret an interview with a child and relate your findings to relevant literature.

On successful completion you will be able to:

- Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
- Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
- Demonstrate knowledge and understanding of numeracy teaching strategies and their application in teaching areas.

Final examination

Due: **Exam period**
Weighting: **30%**

A 1.5 hour written exam paper covering the content of the unit.

On successful completion you will be able to:

- Demonstrate understanding of the content covered in online learning activities and on-campus workshops.

Delivery and Resources

Class times and locations

You should have enrolled in one of the following tutorial classes:

Wednesday 9:30am – 12:30pm in room C5A 222 with Susan Busatto

Or

Wednesday 1:00 – 4:00pm in room C5A 222 with Heather McMaster

Or

Wednesday 1:00 – 4:00pm in room C5A 218 with Michelle Wingett

These classes are **compuslory** and are held on December 10, 17 and January 7, 14, and 21.

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.

Graduate Capabilities

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

- Demonstrate knowledge and understanding of research into how students learn certain fundamental mathematical ideas and the implications for teaching.
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- Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
- Demonstrate knowledge and understanding of numeracy teaching strategies and their application in teaching areas.
- Demonstrate understanding of the content covered in online learning activities and on-campus workshops.

Assessment tasks

- Contribution to online learnin
- Quiz 1
- Quiz 2
- Numeracy Interview
- Final examination

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:

Assessment tasks

- Numeracy Interview
- Final examination

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

- Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
- Demonstrate knowledge and understanding of numeracy teaching strategies and their application in teaching areas.

Assessment task

- Numeracy Interview

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

- Demonstrate knowledge and understanding of research into how students learn certain fundamental mathematical ideas and the implications for teaching.
- Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
- Demonstrate understanding of the concepts, substance and structure of the content and teaching strategies of mathematics.
- Demonstrate knowledge and understanding of numeracy teaching strategies and their application in teaching areas.
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