TEP 429

Mathematics in the Secondary School I

S1 Day 2018

Department of Educational Studies

Contents

General Information

Unit convenor and teaching staff
Unit Convenor
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Credit points
3

Prerequisites
EDUC258 and TEP388

Corequisites
TEP401

Co-badged status

Unit description
This unit provides an introduction to the secondary Mathematics curriculum and its teaching. There are three main themes: understanding the central concepts of school algebra; teaching methods, including lesson planning and the role of technology in Mathematics education; and practical and professional issues arising from students' concurrent professional experience in TEP401. Particular emphasis is given to learning and teaching Mathematics in Years 7 to 10. Please consult the Secondary TEP Guide for recommended prior studies.

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 of the content of Stages 4 and 5 mathematics of the current NSW 7-10 syllabus and impending NSW syllabus for the Australian Curriculum

Demonstrate understanding of a range of teaching strategies related to the content of Stages 4 and 5 of the mathematics syllabuses

Implement teaching strategies for using ICT that engage students in their learning

Demonstrate knowledge and understanding of research into how students learn mathematical concepts

Demonstrate knowledge and understanding of strategies for differentiating teaching to meet specific learning needs of students across a range of backgrounds and abilities
Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities
Explore educational ideas through action research
Develop oral communication skills, listening skills, and teamwork skills

Assessment Tasks

Name	Weighting	Hurdle	Due
Task 1	40%	No	Week 6
Task 2	50%	No	Week 12
Unit Participation	10%	No	Week 13

Task 1

Due: **Week 6**
Weighting: **40%**

Investigate student understanding of equations.

You submit a soft copy of your assignment via Turnitin.

Information regarding penalties for late submission of the assignment can be found in the TEP429 Unit Guide.

On successful completion you will be able to:

- Demonstrate knowledge and understanding of research into how students learn mathematical concepts
- Explore educational ideas through action research

Task 2

Due: **Week 12**
Weighting: **50%**

Plan a unit of work for any topic from Stage 4 or 5 Mathematics syllabus.

Information regarding penalties for late submission of the assignment can be found in the TEP429 Unit Guide.

On successful completion you will be able to:

- Demonstrate knowledge of the content of Stages 4 and 5 mathematics of the current

NSW 7-10 syllabus and impending NSW syllabus for the Australian Curriculum
- Demonstrate understanding of a range of teaching strategies related to the content of Stages 4 and 5 of the mathematics syllabuses
- Implement teaching strategies for using ICT that engage students in their learning
- Demonstrate knowledge and understanding of strategies for differentiating teaching to meet specific learning needs of students across a range of backgrounds and abilities
- Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities

Unit Participation

Due: **Week 13**
Weighting: **10%**

Designed to assess your attendance and participation in the workshops.

On successful completion you will be able to:
- Develop oral communication skills, listening skills, and teamwork skills

Delivery and Resources

The classes for TEP429 are workshops. There is one x 3hr workshop per week.

You will need to access a copy of the Years 7-10 Mathematics Syllabus and download the weekly learning activities from the TEP429 iLearn page.

We will discuss the role of technology in mathematics education at various times during the unit. You will use the univsersity computers to practise using various software programs suitable for use in mathematics lessons. The requirement for technology use by students is that you bring your personal laptop or other device with internet connection to the workshops and prepare your assignments using a computer.

Unit Schedule

Details of the week by week schedule are provided in the full Unit Guide that is made available on enrolment in the unit.

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). 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). 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 (https://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.

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

- Demonstrate understanding of a range of teaching strategies related to the content of Stages 4 and 5 of the mathematics syllabuses
- Implement teaching strategies for using ICT that engage students in their learning
- Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities

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

- Demonstrate knowledge and understanding of research into how students learn mathematical concepts
- Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities

Assessment task

- Task 2

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 of the content of Stages 4 and 5 mathematics of the current NSW 7-10 syllabus and impending NSW syllabus for the Australian Curriculum
- Demonstrate understanding of a range of teaching strategies related to the content of Stages 4 and 5 of the mathematics syllabuses
- Implement teaching strategies for using ICT that engage students in their learning
- Demonstrate knowledge and understanding of research into how students learn mathematical concepts
- Demonstrate knowledge and understanding of strategies for differentiating teaching to meet specific learning needs of students across a range of backgrounds and abilities
- Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities

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 outcome

- Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities

Assessment task

- Task 2

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 research into how students learn mathematical concepts
- Explore educational ideas through action research

Assessment task

- Task 1

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 mathematical concepts
- Plan and implement effective mathematics lessons that provide achievable challenges for students of varying backgrounds and abilities
- Explore educational ideas through action research
- Develop oral communication skills, listening skills, and teamwork skills

Assessment tasks

- Task 1
- Task 2
- Unit Participation

Changes from Previous Offering

The assessment schedule has been changed