EDST8226

Teaching Mathematics in the Secondary School 1

Session 2, In person-scheduled-infrequent, North Ryde 2024

Macquarie School of Education

Contents

General Information

Unit convenor and teaching staff
Convenor
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Credit points
10

Prerequisites

Corequisites
EDST8237

Co-badged status

Unit description
This unit provides an introduction to the secondary mathematics curriculum and its teaching. Students develop and integrate an in-depth, broad and coherent knowledge of the central concepts of school algebra; teaching methods, including planning units of work and the role of technology in mathematics education; and a critical reflection on practical and professional issues arising from students' professional experience. Particular emphasis is given to learning and teaching mathematics in Years 7 to 10.

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:

ULO1: Demonstrate in-depth, broad and coherent knowledge of the content of Stages 4 and 5 mathematics of the NSW 7-10 syllabus for the Australian Curriculum.

ULO2: Critically analyse a range of teaching strategies related to the content of Stages 4 and 5 of the mathematics syllabus.

ULO3: Synthesise scholarly knowledge of research and apply this knowledge to how students learn mathematical concepts.

ULO4: Plan for, implement and critically reflect on effective units of work in mathematics

that provide achievable challenges for students of varying backgrounds and abilities.
ULO5: Explore and apply educational ideas through action research.
ULO6: Skilfully communicate knowledge of mathematical content and teaching strategies with scholarship making use of supporting evidence.

General Assessment Information

- Students should be aware of and apply the University policy on academic honesty (see: https://policies.mq.edu.au/document/view.php?id=3)
- Unless a Special Consideration (see: https://students.mq.edu.au/study/assessment-exams/special-consideration) request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a mark of, 0 (zero) will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55pm. A 1-hour grace period is provided to students who experience a technical issue.This late penalty will apply to non-timed sensitive assessment (incl essays, reports, posters, portfolios, journals, recordings etc).
- Late submission of time sensitive tasks (such as tests/exams, performance assessments/presentations, scheduled practical assessments/labs etc) will only be addressed by the unit convenor in a Special consideration application. Special Consideration outcome may result in a new question or topic.
- Please format assessments using 12-point font and 1.5 spacing.
- All assessments are submitted electronically. Turnitin plagiarism detection software is used to check all written assessments.
- Students can use Turnitin's Originality Report as a learning tool to improve their academic writing if this option is made available in the unit.
- Students should carefully check that they submit the correct file for an assessment as no re-submissions will be accepted after the due date and time, including instances where students upload an incorrect file in error.
- Word limits are strictly applied. Work above the word limit will not be marked.
- All assessments are marked using a clear marking scheme or a rubric.
- Marking of all assessments is moderated by the Unit Convenor.
- Applications for extensions must be made via AskMQ (https://ask.mq.edu.au/).
- It is **not the responsibility** of unit staff to contact students who have failed to submit assessments. If you have any missing items of assessment, it is your responsibility to make contact with the unit convenor.

In accordance with the Academic Integrity Policy a student must take responsibility, be proactive, take ownership and hold oneself responsible for ensuring all information and content, including citations and references in their assessment, have been generated and communicated in an ethical, honest and responsible manner. Failure to show responsibility by checking the accuracy and integrity of your own content, citations and references, or the submission of falsified content, is a breach of the Academic Integrity Policy.

Criteria for awarding grades for assessment tasks

Assignments will be awarded grades ranging from HD to F according to guidelines set out in the University's Grading Policy.

Descriptive Criteria for awarding grades in the unit

To meet the unit outcomes and successfully pass this unit, students should attempt all assessment tasks.

The following generic grade descriptors provide university-wide standards for awarding final grades.

Grade	Descriptor
HD (High Distinction)	Provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem-solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.
D (Distinction)	Provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.
Cr (Credit)	Provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent justification; communication of ideas fluently and clearly in terms of the conventions of the discipline.
P (Pass).	Provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes
F (Fail)	Does not provide evidence of attainment of learning outcomes. ?There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.

Note: *If you fail a unit with a professional experience component, the fail grade will be on your transcript irrespective of the timing of the placement.*

Withdrawing from this unit

If you are considering withdrawing from this unit, please seek academic advice via https://ask.m

q.edu.au before doing so as this unit may be a co-requisite or prerequisite for units in the following sessions and may impact on your progression through the degree.

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.

Assessment Tasks

Name	Weighting	Hurdle	Due
Unit of work	60%	No	23:55 15/09/2024
Algebra research report	40%	No	23:55 06/10/2024

Unit of work

Assessment Type [1]: Work-integrated task
Indicative Time on Task [2]: 50 hours
Due: **23:55 15/09/2024**
Weighting: **60%**

Prepare a unit of work for a topic from the Stages 4-5 mathematics syllabus [2000 words]

On successful completion you will be able to:

- Demonstrate in-depth, broad and coherent knowledge of the content of Stages 4 and 5 mathematics of the NSW 7-10 syllabus for the Australian Curriculum.
- Critically analyse a range of teaching strategies related to the content of Stages 4 and 5 of the mathematics syllabus.
- Plan for, implement and critically reflect on effective units of work in mathematics that provide achievable challenges for students of varying backgrounds and abilities.
- Skilfully communicate knowledge of mathematical content and teaching strategies with scholarship making use of supporting evidence.

Algebra research report

Assessment Type [1]: Report
Indicative Time on Task [2]: 30 hours
Due: **23:55 06/10/2024**
Weighting: **40%**

Conduct an interview with a secondary school student about their understanding of equations; report the results and suggest implications for learning and teaching mathematics [1500 words]

On successful completion you will be able to:

- Synthesise scholarly knowledge of research and apply this knowledge to how students learn mathematical concepts.
- Explore and apply educational ideas through action research.
- Skilfully communicate knowledge of mathematical content and teaching strategies with scholarship making use of supporting evidence.

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

This unit has a full web presence through *iLearn*.

Students will need regular access to a computer and the Internet to complete this unit.

Weekly access to iLearn is compulsory for all students. Important assessment information will be posted here, as will other relevant unit notices and materials, including a reading template and guide to lecture note taking to assist your studies.

Various activities and materials for discussion and critical reflection are included and external students especially are encouraged to use this web component. Electronic links and suggested references will be included in the Resources section. Please check the iLearn unit regularly.

PowerPoint slides are available in iLearn after the workshops.

Access and technical assistance

Information for students about access to the online component of this unit is available at https://ilearn.mq.edu.au/login/index.php. You will need to enter your student username and password.

Please do **NOT** contact the Unit Convenor regarding *iLearn* technical help.

No extensions will be given for any technical issues. Allow enough time for your submissions.

Assistance is available from IT Helpdesk ph: 1800 67 4357 or log a request at help.mq.edu.au.

OneHelp is the online IT support service for both students and staff.

Structure

The unit structure can be found in the university timetable Creating your timetable - Enrolling | Macquarie University, Sydney (mq.edu.au)

In the workshops students will discuss issues and questions arising from the preparation activities and prescribed readings. They are expected to base their arguments/discussions on evidence from published research and other relevant material. There will be a supporting website for the unit providing additional readings, links and materials.

Students are required to participate in small group activities and whole class discussion, and to read the workshop materials in advance. The weekly program for the course with the accompanying readings and preparation materials can be found on the unit iLearn site.

Unit Schedule

Please refer to the unit iLearn site.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). 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
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) 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 connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

School of Education Procedures

In addition, the following policies and procedures of the School of Education are applicable in this unit.

Attendance for Master of Teaching (Primary and Secondary) units

*Attendance at all synchronous activities, completion of non-synchronous formative/diagnostic class tasks and involvement in professional forums is **compulsory** as the Master of Teaching is a professional qualification. All students must meet the 80% attendance requirement.*

Activities completed during tutorials or on campus days are essential for building the core knowledge and/or skills required to demonstrate the learning outcomes of this unit and to meet the AITSL Graduate Teacher Standards. Attendance at all tutorials or on campus days is expected and the roll will be taken.

Students are required to attend the tutorial in which they are enrolled. Any changes to tutorial enrolments must be completed officially through e-student. Please do not contact the unit convenor requesting a change.

Electronic Communication

It is the student's responsibility to check all electronic communication on a regular weekly basis. Communication may occur via:

- Official *MQ Student Email* Address
- The *Dialogue* function on iLearn
- Other iLearn communication functions

Fail Rule

This unit is a part of a professional course listed on Schedules 2 and 3 of the Academic Progression Policy. This course has additional requirements that are applicable for the full duration of the course, including course-specific inherent requirements, Fitness to Practice requirements and other compulsory course requirements. It also has rigorous academic progression standards. Inability to meet these requirements may result in a withdrawal of offer of

admission and/or permanent exclusion from the course in accordance with the General Coursework Rules.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the Service Connect Portal, or contact Service Connect.

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.

5Rs Framework

The 5Rs Framework, developed by the School of Education at Macquarie University, is embedded throughout your teacher education course.

Your use of the 5Rs Framework will help you develop the capabilities that will make your teaching career sustainable and fulfilling.

In this unit, you will learn using the 5Rs framework in the following important ways:

Ready to learn:

As part of this unit, you will identify specific goals for your professional experience placement and view a "Supervising teachers' expectations" video to consider how these expectations impact how you will approach my learning during the practicum.

Research engaged:

In the Algebra Research Report assignment you will interpret a secondary school student's interview responses in light of relevant mathematics education research.

Unit information based on version 2024.01R of the Handbook