

EDU748 Teaching Senior Secondary Mathematics

School: School of Education and Tertiary Access

2024 | Semester 2

UniSC Sunshine Coast
UniSC Moreton Bay

**BLENDED
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

In this course, you will develop specialised knowledge and skills for implementing the Queensland Senior Secondary Mathematics curriculum. You will learn how to design lesson plans and learning sequences that will engage diverse learners. You will explore and evaluate a range of pedagogy, assessment and reporting strategies that maximise learning outcomes for senior students, including developing strategies for supporting literacy, numeracy and ICT learning within Mathematics.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – You are required to engage with asynchronous materials and activities accessed through Canvas modules, course readings, and textbook activities.	2hrs	Week 1	9 times
Tutorial/Workshop 1 – face to face tutorials	2hrs	Week 1	10 times

1.3. Course Topics

- Senior Curriculum documents in Mathematics
- Curriculum planning and alignment of content, pedagogy and assessment
- Teaching and learning strategies for engagement in Mathematics
- Assessment and reporting practices in the senior phase
- Mathematical modelling and problem solving
- Integrating resources, including information and communication technologies (ICT) into mathematics curriculum
- Literacy and numeracy in senior mathematics

2. What level is this course?

700 Level (Specialised)

Demonstrating a specialised body of knowledge and set of skills for professional practice or further learning. Advanced application of knowledge and skills in unfamiliar contexts.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING *
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Australian Institute for Teaching and School Leadership
1 Apply your knowledge of Mathematics content and curriculum to develop activities for mathematical modelling and problem-solving teaching sequences and assessment strategies to engage all learners.	Creative and critical thinker Engaged	2.1, 2.2, 3.1, 3.2, 3.3
2 Apply a student-centred approach to curriculum planning, assessment, feedback and reporting of student achievement in Mathematics.	Creative and critical thinker Engaged	2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3, 5.4, 5.5
3 Demonstrate quality teaching strategies that support the diversity of learners in senior Mathematics.	Engaged	2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 5.1
4 Apply knowledge of the use of graphics calculators and other technologies to support the use of mathematical modelling and Problem solving in Mathematics.	Creative and critical thinker Engaged	2.1, 2.6, 3.4, 4.5
5 Create oral and/or written communication concerning curriculum teaching, learning and assessment in senior secondary mathematics for classroom and professional contexts.	Empowered	2, 2.5, 3.5

* Competencies by Professional Body

CODE	COMPETENCY
AUSTRALIAN INSTITUTE FOR TEACHING AND SCHOOL LEADERSHIP	
2	PROFESSIONAL KNOWLEDGE: Know the content and how to teach it
2.1	Content and teaching strategies of the teaching area: Demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies of the teaching area
2.2	Content selection and organisation: Organise content into an effective learning and teaching sequence.
2.3	Curriculum, assessment and reporting: Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.
2.5	Literacy and numeracy strategies: Know and understand literacy and numeracy teaching strategies and their application in teaching areas.
2.6	Information and Communication Technology (ICT): Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.
3.1	Establish challenging learning goals: Set learning goals that provide achievable challenges for students of varying abilities and characteristics.
3.2	Plan, structure and sequence learning programs: Plan lesson sequences using knowledge of student learning, content and effective teaching strategies.
3.3	Use teaching strategies: Include a range of teaching strategies.

CODE	COMPETENCY
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|-----|---|
| 3.4 | Select and use resources: Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning. |
| 3.5 | Use effective classroom communication: Demonstrate a range of verbal and non-verbal communication strategies to support student engagement |
| 4.1 | Support student participation: Identify strategies to support inclusive student participation and engagement in classroom activities. |
| 4.2 | Manage classroom activities: Demonstrate the capacity to organise classroom activities and provide clear directions |
| 4.5 | Use ICT safely, responsibly and ethically: Demonstrate an understanding of the relevant issues and the strategies available to support the safe, responsible and ethical use of ICT in learning and teaching. |
| 5.1 | Assess student learning: Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning. |
| 5.2 | Provide feedback to students on their learning: Demonstrate an understanding of the purpose of providing timely and appropriate feedback to students about their learning |
| 5.3 | Make consistent and comparable judgements: Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning. |
| 5.4 | Interpret student data: Demonstrate the capacity to interpret student assessment data to evaluate student learning and modify teaching practice. |
| 5.5 | Report on student achievement: Demonstrate understanding of a range of strategies for reporting to students and parents/ carers and the purpose of keeping accurate and reliable records of student achievement |

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in Program ED706 and a Mathematics Teaching area

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Students enrolled in this course will have completed undergraduate studies with a Mathematics major or minor.

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Feedback on the assessment tasks will be available during tutorials in Weeks 2 and 3.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Oral	Individual and Group	20%	6 minutes	Week 4	Online Submission
All	2	Oral and Written Piece	Group	40%	40 minutes	Week 7	Online Assignment Submission with plagiarism check
All	3	Portfolio	Individual	40%	2200 words	Week 10	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Assessment in Mathematics

GOAL:	The goal of this task is to demonstrate your understanding of problem solving and modelling, assessment, moderation, and its alignment with the requirements of the chosen Senior Mathematics curriculum document.													
PRODUCT:	Oral													
FORMAT:	<p>In groups of 2 or 3 you will complete one of the Problem-solving and modelling tasks (PSMT) provided on Canvas from General Mathematics, Mathematics Methods, or Specialist Mathematics. There will be some time provided in tutorials in weeks 1 and 2 to work on the task.</p> <p>In week 3 you will use the Instrument Specific Marking Guide (ISMG) to mark some responses to the PSMT and as a tutorial group moderate this marking.</p> <p>Create a video presentation of your reflection which includes:</p> <ul style="list-style-type: none"> • The mathematics and technology needed to successfully complete the PSMT • Alignment of the task with the curriculum • Challenges and learnings from completing, assessing and moderating the PSMT. 													
CRITERIA:	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Understanding and application of knowledge of mathematics content, curriculum, and assessment strategies</td> <td>1 2</td> </tr> <tr> <td>2</td> <td>Understanding and knowledge of the role of technology in senior secondary mathematics</td> <td>4</td> </tr> <tr> <td>3</td> <td>Professional oral and written communication including grammar, English expression, and technical accuracy.</td> <td>5</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	Understanding and application of knowledge of mathematics content, curriculum, and assessment strategies	1 2	2	Understanding and knowledge of the role of technology in senior secondary mathematics	4	3	Professional oral and written communication including grammar, English expression, and technical accuracy.	5	
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2	Understanding and knowledge of the role of technology in senior secondary mathematics	4												
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All - Assessment Task 2: Technology in Mathematics Seminar

GOAL:	The goal of this task is to develop skills in preparing technology resources; demonstrate ways of using computer software and graphics calculators in teaching mathematics; and share ideas with colleagues in a professional development setting.	
PRODUCT:	Oral and Written Piece	
FORMAT:	<p>In pairs you will choose a topic from one of the General Mathematics, Mathematics Methods or Specialist Mathematics syllabus, and prepare a technology-based activity designed to teach some aspect of the topic. (This must be a different syllabus from Task 1 and does not include Unit 1.)</p> <p>Your handout will be submitted in week 7.</p> <p>In week 7 or 8 during the seminar or tutorial you will as a pair:</p> <ol style="list-style-type: none"> 1. Present the activity to an audience of your peers. This presentation will take the form of a professional development seminar lasting 20-30 minutes. Allow about 20 minutes for fellow students to try the activity, and a further 10 minutes for questions and discussion. 2. To accompany your oral presentation, provide a handout containing information that will enable another teacher to implement the activity. Your handout should: <ul style="list-style-type: none"> • Identify the Syllabus, (General Mathematics, Mathematics Methods or Specialist Mathematics) Unit, topic and subject matter • Describe any modifications made to the original form of the activity and the source of the activity • In a rationale explain the purpose of the activity and its relevance to the mathematical topic • State the problem to be solved or task to be completed • Include possible solutions • Include teaching notes 3. Submit your handout in hard copy 	
CRITERIA:	No.	Learning Outcome assessed
	1 Application of deep knowledge mathematics content and curriculum, and assessment strategies	1 2 3
	2 Application of deep knowledge of technology in senior secondary mathematics	4
	3 Create professional oral and written communication including grammar, English expression, and technical accuracy.	5

All - Assessment Task 3: Learning Sequence

GOAL:	The goal of this task is to demonstrate your understanding and application of teaching, learning and assessment in senior mathematics.
PRODUCT:	Portfolio
FORMAT:	<p>Review the sample assessment: Examination given on Canvas.</p> <p>For a small sample of questions from this exam prepare a portfolio that includes:</p> <ul style="list-style-type: none"> • The unit, topic, and subject matter that you will be responding to. • A sequence of 3 lessons that includes the learning, teaching, and formative assessment activities that will help students learn the material assessed by the chosen question(s). Full lesson plans are not required. • Provide a short formative assessment task that will assess the learning in these three lessons and detail the feedback process you will use with students. The formative task will be given in a subsequent lesson. • Justify your sequence of learning and how it supports students to undertake the assessment task. Explain how feedback from formative assessment might be incorporated in the lesson and with future planning. Identify the teaching of literacy, numeracy (21st C numeracy model) and 21st C skills addressed in the sequence of learning. Draw on syllabus, course readings, and other literature.

CRITERIA:

No.		Learning Outcome assessed
1	Knowledge and application of mathematics unit objectives, subject matter, sample learning experiences, resources, literacy, numeracy, ICT and 21st-century skills that engage students.	1 2
2	Justification of assessment, feedback and pedagogical decision making.	3
3	Use of credible evidence and sources.	5
4	Written communication and academic literacies including grammar, English expression, APA referencing conventions, and technical accuracy.	5

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Merrilyn Goos,Gloria Stillman,Colleen Vale,Sandra Herbert,Vince Geiger	2017	Teaching Secondary School Mathematics	n/a	n/a

8.2. Specific requirements

Nil

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.10.General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au