

EDU382

Teaching STEM in Primary School

School: School of Education and Tertiary Access

2025 | Semester 1

UniSC Sunshine Coast
UniSC Moreton Bay
UniSC Fraser Coast

**BLENDED
LEARNING**

You can do this course without coming onto campus, unless your program has specified a mandatory onsite requirement.

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 draw Science, Technology, Engineering and Mathematics together with a primary STEM education focus. You will apply your well-developed subject-discipline knowledge, teaching strategies and curriculum design skills to promote integrated STEM learning, enhancing students' 21st century skills. You will participate in the design of sustainability-focused learning experiences, promoting engaging and rich learning activities which draw on STEM-based substantive and disciplinary knowledge. This course encourages you to demonstrate your well-developed knowledge and judgement of STEM pedagogy and learning theory to creatively design curriculum.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – You are required to engage with Learning Materials accessed through Canvas.	2hrs	Week 1	9 times
Tutorial/Workshop 1 – The tutorials are face-to-face and required materials are provided weekly on Canvas.	2hrs	Week 1	10 times

1.3. Course Topics

- Australian Curriculum: (Science, Technology, and Maths).
- Integrated curriculum design
- Embedding the cross-curricular priority of sustainability
- STEM teaching strategies
- Planning and Assessment of integrated STEM learning through designing units of work
- Pedagogical Content Knowledge (PCK) of STEM pedagogy

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

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 Demonstrate advanced STEM curriculum knowledge and pedagogy	Knowledgeable	2, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4
2 Plan and present a STEM learning experience with a sustainability context	Creative and critical thinker Engaged Sustainability-focussed	1.5, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.5
3 Draw on advanced STEM knowledge to plan a sequence of lessons which meets subject curriculum requirements	Knowledgeable Creative and critical thinker	1.5, 2, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 5.1, 7.4
4 Justify the opportunities of STEM pedagogy and curriculum design with the use of literature	Knowledgeable Creative and critical thinker Ethical Engaged	1, 1.1, 1.2, 3.2, 3.6, 7.4
5 Employ professional and / or academic language, structure and text to communicate curriculum strategies and ideas.	Empowered Ethical Engaged	2, 3, 3.5, 7.1

* Competencies by Professional Body

CODE	COMPETENCY
AUSTRALIAN INSTITUTE FOR TEACHING AND SCHOOL LEADERSHIP	
1	PROFESSIONAL KNOWLEDGE: Know students and how they learn
1.1	Physical, social and intellectual development and characteristics of students: Demonstrate knowledge and understanding of physical, social and intellectual development and characteristics of students and how these may affect learning.
1.2	Understand how students learn: Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.
1.5	Differentiate teaching to meet the specific learning needs of students across the full range of abilities: Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
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.

CODE	COMPETENCY
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	PROFESSIONAL PRACTICE: Plan for and implement effective teaching and learning
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.
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
3.6	Evaluate and improve teaching programs: Demonstrate broad knowledge of strategies that can be used to evaluate teaching programs to improve student learning.
5.1	Assess student learning: Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.
7.1	Meet professional ethics and responsibilities: Understand and apply the key principles described in codes of ethics and conduct for the teaching profession.
7.4	Engage with professional teaching networks and broader communities: Understand the role of external professionals and community representatives in broadening teachers' professional knowledge and practice.

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

EDU212 or EDU107 and enrolled in Program ED304

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

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

Not applicable

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

Task 1 is weeks 3 and 4

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	Group	20%	5 minutes	Week 4	In Class
All	2	Written Piece	Individual	40%	1500 words	Week 7	Online Assignment Submission with plagiarism check
All	3	Written Piece	Individual	40%	1000 words unit overview 1000 words lesson plan	Week 10	Online Assignment Submission with plagiarism check

All - Assessment Task 1: STEM learning unit presentation

GOAL:	The goal of this task is for you to plan and present a broad age-appropriate STEM lesson sequence, drawing on a sustainability-focused context.							
PRODUCT:	Oral							
FORMAT:	Students will choose a UNESCO Sustainable Development Goal as a context for a STEM unit of learning. In pairs, you will create and present an outline for this sustainability-focused unit of learning, sharing how this will promote age-appropriate engagement, and draw together learning requirements of each STEM curriculum discipline. The time allocation for presenting the unit of learning is 15 minutes, This will be followed by feedback on the activity through discussion with peers.							
CRITERIA:	No.						Learning Outcome assessed	
	1	Application of knowledge of the Australian Curriculum (Primary science, mathematics, and technology)					1	3
	2	Application of appropriate science, maths and technology content and pedagogical knowledge, as appropriate in relation to an age-appropriate sustainability context.					2	3
	3	Oral communication skills and academic literacies including use of credible evidence and sources, and APA referencing conventions					5	
GENERIC SKILLS:	Communication, Collaboration, Problem solving							

All - Assessment Task 2: STEM learning justification

GOAL:	The goal of this task is for you to develop your ability to reflect on literature to justify the opportunities and challenges of STEM curriculum design and pedagogy.		
PRODUCT:	Written Piece		
FORMAT:	In your rationale, you will outline the different approaches to STEM-based learning, including interdisciplinary, multidisciplinary and trans disciplinary learning. Drawing on curriculum examples and academic literature, you will explore the nature of STEM education and its importance. You will explore the opportunities and challenges, and suggest strategies to design and innovate engaging STEM learning experiences.		
CRITERIA:	No.		Learning Outcome assessed
	1	Understanding of STEM learning pedagogies and their application to primary curriculum design.	1 4
	2	Understanding of the relevant issues and strategies required to design effective STEM learning experiences in the primary curriculum	1 4
	3	Written communication skills and academic literacies including use of credible evidence and sources, and APA referencing conventions	5
GENERIC SKILLS:	Communication, Problem solving		

All - Assessment Task 3: STEM learning sequence and lesson plan

GOAL:	The goal of this task is for you to develop your ability to prepare a sustainability-focused STEM sequence of learning and a lesson plan.		
PRODUCT:	Written Piece		
FORMAT:	Based on feedback you have received from assessment tasks 1 and 2, you will prepare and plan a 5-lesson STEM learning sequence including a fully detailed lesson plan for one of your five lessons. The lesson plan will be for a specified Year 1 - 6 primary class of 25 students. The unit sequence and lesson plan requirements will be provided on Canvas. Within your 5-lesson sequence, you will outline each activity, specify which STEM subjects will be drawn upon, and identify how 21st learning skills will be developed, underpinned by a relevant age-appropriate sustainability context. The lesson plan will include the subject curriculum content, teaching strategies and assessment.		
CRITERIA:	No.		Learning Outcome assessed
	1	Application of knowledge of the Australian Curriculum: Science, mathematics and technology in primary schools	1 2
	2	Application of subject-specific content and pedagogical knowledge across the STEM unit of learning, as appropriate to engage primary-aged students.	1 2 3
	3	Understanding of STEM curriculum knowledge and skills in relation to the chosen sustainability context for learning.	2
	4	Written communication skills and academic literacies including use of credible evidence and sources, and APA referencing conventions	5
GENERIC SKILLS:	Communication, Problem solving, Organisation, Information literacy		

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.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
Module 3 Weeks 8-10 Planning, organising and integrating English content into a unit of work.	What is a unit of work? Interpreting student data and evaluating teaching programs. Assessing English, providing feedback, engaging in moderation and reporting. Investigating Units of Work. Conducting further readings and tutorial/online activities as outlined in the weekly Learning Materials on CANVAS.
Module 2 Weeks 4-7 English teaching strategies for diverse learners in a range of contexts.	Introducing teaching strategies that include those that are non-verbal and ICT based (with emphasis on the safe, responsible and ethical use of ICTs). Applying teaching strategies during tutorials to cater for Aboriginal and Torres Strait Islander and other groups' histories, cultures and languages. Linking teaching strategies to stages and strands of English learning in curriculum documents. Developing referencing skills. Identifying points of view. Learning how to develop a Lesson Plan. Organising and integrating lesson content, skill, strategies including ICT for diverse learners in a Lesson Plan. Reading a variety of journal articles based on explicit English teaching strategies. Viewing English lessons provided on Canvas. Engaging with further readings and tutorial/online activities as presented in CANVAS Learning Materials.
Module 1 Weeks 1-3 Australian Curriculum English: F-12 Language acquisition and literary theories – including the Four Resources Model. An introduction to the role that literary texts play in language learning.	Develop referencing skills. Navigate the Australian Curriculum English website. Engage with the genres of adolescent literature. Learn how to interpret and critically evaluate documents, and make and justify ethical decisions and write responses. Respond to feedback on knowledge and skill provided in Week 3. Explore the education policy documents that include: Melbourne Declaration, A Flying Start for QLD Children. QLD Closing the Gaps Report, Towards a 10-year plan for STEM. Investigate relevant English policy documents from the ALEA site. Participate in library work. Read young adult literature. Engage in further readings and tutorial/online activities provided in CANVAS weekly Learning Materials.

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	Anne Forbes, Vinesh Chandra, Linda Pfeiffer, Rachel Sheffield	2021	STEM Education in the Primary School	1	Cambridge University Press

8.2. Specific requirements

Not applicable

9. How are risks managed in this course?

Risk assessments have been performed for all studio and laboratory classes and a low level of health and safety risk exists. Some risk concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the 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:

- (a) The final mark is in the percentage range 47% to 49.4%; and
- (b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:

- (a) One day: deduct 5%;
- (b) Two days: deduct 10%;
- (c) Three days: deduct 20%;
- (d) Four days: deduct 40%;
- (e) Five days: deduct 60%;
- (f) Six days: deduct 80%;
- (g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:

Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

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