

EDU309 Teaching Science in Primary Schools

School: School of Education and Tertiary Access

2023 | Semester 2

UniSC Sunshine Coast
UniSC Moreton Bay
UniSC Fraser Coast

**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

This course engages Big Ideas in science with chemical and physical sciences to build your science literacy & proficiency as a science teacher. Throughout the course you will plan & take part in hands-on activities & investigations to explore science concepts and model the pedagogy of science. You will build your familiarity with the Australian Curriculum - Science by exploring the links between the curriculum strands, science Big Ideas & science classroom activities in chemical and physical science.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – You are required to engage and interact with asynchronous materials and activities accessed through Canvas modules, course readings and required texts.	2hrs	Week 1	9 times
Tutorial/Workshop 1 – A blended learning approach is used to deliver the workshop component of the course. The workshop is synchronous using technology-enabled learning and teaching experience that involves on-campus engagement and application of learning materials.	2hrs	Week 1	10 times

1.3. Course Topics

- Develop an understanding of the Australian Curriculum: Science in the primary years (Chemical Sciences and Physical Sciences focus)
- Understand and apply 'big ideas' of Science, including the particle model, matter, energy, forces, and the Nature of Science
- Develop and apply science pedagogies
- Consider issues relating to managing a science classroom: student engagement, learning by inquiry, active learning, context, argumentation, representations
- Engage with technologies to enhance science education
- Design safe science learning experiences and assessment strategies appropriate for primary classrooms

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 Build strong personal science literacy and engage with Big Ideas in science in a range of learning and investigative contexts. Develop skills for promoting scientific literacy and integration of literacy and numeracy skills.	Knowledgeable Creative and critical thinker	2, 2.1, 2.5, 3.2, 3.3, 3.4
2 Evaluate links between science content, the Australian Curriculum - Science (ACS), literacy and numeracy capabilities, and learning theory and teaching strategies that contribute to planning science education activities.	Knowledgeable Empowered	1, 1.2, 2, 2.1, 2.2, 2.3, 2.5, 3, 3.2, 3.3, 3.4, 4, 4.4, 5.1
3 Apply innovative and adaptive science education design, including use of resources, including ICT, ethics and risk management protocols, application of literacy and numeracy strategies to promote scientific literacy, to plan science activities and events that facilitate student engagement and achievement	Creative and critical thinker Empowered	2, 2.1, 2.2, 2.5, 2.6, 3, 3.2, 3.3, 3.4, 4, 4.4, 4.5, 6.2, 6.3, 7
4 Develop competency incorporating design technologies approaches to support your science teaching, further learning and professional advancement. Explore literacy and numeracy strategies to promote scientific literacy.	Engaged Sustainability-focussed	2, 2.1, 2.5, 2.6, 3.2, 4.5, 6.2, 6.3

* Competencies by Professional Body

CODE	COMPETENCY
AUSTRALIAN INSTITUTE FOR TEACHING AND SCHOOL LEADERSHIP	
1	PROFESSIONAL KNOWLEDGE: Know students and how they learn
1.2	Understand how students learn: Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.
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.

CODE	COMPETENCY
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	PROFESSIONAL PRACTICE: Plan for and implement effective teaching and learning
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.
4	PROFESSIONAL PRACTICE: Create and maintain supportive and safe learning environments
4.4	Maintain student safety: Describe strategies that support students' wellbeing and safety working within school and/or system, curriculum and legislative requirements.
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.
6.2	Engage in professional learning and improve practice: Understand the relevant and appropriate sources of professional learning for teachers
6.3	Engage with colleagues and improve practice: Seek and apply constructive feedback from supervisors and teachers to improve teaching practices.
7	PROFESSIONAL ENGAGEMENT: Engage professionally with colleagues, parents/carers and the community

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 ED303, ED304 or ED306

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

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

ED304 students (Bachelor of Primary Education) will have successfully completed minimum of 12 Education Courses, not including school placement courses.

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

Early feedback is provided as part of task 1a. The expectations of the course assessment will become very clear through participation in collaborative activities that emulate the nature of the assessment in the course.

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	1a	Quiz/zes	Individual	15%	30 minutes	Week 4	In Class
All	1b	Quiz/zes	Individual	15%	30 minutes	Week 10	In Class
All	2	Plan	Individual	35%	2 x lesson plans (2 x 1000 words)	Week 6	Online Assignment Submission with plagiarism check and in class
All	3	Plan	Individual	35%	1000-word lesson plan and 7 minute teaching segment.	Week 8	Online Assignment Submission with plagiarism check and in class

All - Assessment Task 1a: Chemical Science Quiz

GOAL:	The goal of this task is to demonstrate science content knowledge and curriculum understanding aligned with the Australian Curriculum: Science (Chemical Sciences) for primary school teachers.					
PRODUCT:	Quiz/zes					
FORMAT:	Quiz, closed book, multiple choice and short answer					
CRITERIA:	No.					Learning Outcome assessed
	1	Knowledge and understanding of the Australian Curriculum: Science - Chemical Sciences.				1 2
	2	Understanding of appropriate pedagogies to teach science.				1

All - Assessment Task 1b: Physical Science Quiz

GOAL:	The goal of this task is to demonstrate science content knowledge and curriculum understanding aligned with the Australian Curriculum: Science (Physical Sciences) for primary school teachers.					
PRODUCT:	Quiz/zes					
FORMAT:	Quiz, closed book, multiple-choice and short answer					
CRITERIA:	No.					Learning Outcome assessed
	1	Demonstrate knowledge and understanding of the Australian Curriculum: Science - Physical Sciences.				1 2
	2	Demonstrate understanding of appropriate pedagogies to teach science.				1

All - Assessment Task 2: Chemical Science Investigation Planning

GOAL:	The goal of this task is to demonstrate knowledge of the content from the Australian Curriculum: Science - Chemical Science and appropriate pedagogy to develop a scientific investigation.		
PRODUCT:	Plan		
FORMAT:	Contemporary science teaching and learning develops students' ability to follow an inquiry approach by creating and completing investigations in science. This course will teach you how to create an investigation suitable for primary aged students. You will design a teaching sequence of two complete lesson plans as an individual task. Details about the two lesson plans will be discussed in tutorials. A template will be provided and must not be modified. Your lessons should align with the Australian Curriculum: Science – Chemical Sciences sub-strand using developmentally appropriate teaching and learning pedagogies. The lesson plans will indicate assessment opportunities and resources that will meet the needs of a diverse classroom and be equivalent to 2 x 60-minute lessons of science. They should demonstrate inquiry-based learning and teaching.		
CRITERIA:	No.		Learning Outcome assessed
	1	Application of knowledge and understanding of the Australian Curriculum: Science.	1 2
	2	Application of science learning theory and developmentally appropriate pedagogy.	3
	3	Demonstrate design of an investigation and synthesis of the Science content learning outcomes.	1 3 4
	4	Application of written communication skills and academic literacies including English expression grammar, spelling, punctuation, APA referencing conventions.	1

All - Assessment Task 3: Physical Science Teaching Segment and Lesson Plan

GOAL:	The goal of this task is to create and deliver a teaching segment and provide a written lesson plan to demonstrate knowledge of the Australian Curriculum: Science - Physical Sciences.		
PRODUCT:	Plan		
FORMAT:	<p>Lesson Plan: You will create a written lesson plan using the template provided on Canvas. The lesson plan will use an inquiry-based approach to develop a concept from the Physical Sciences Sub-strand. Like Task One, the lesson plan is to demonstrate developmentally appropriate science pedagogy through student investigation. (Submit: Week 9).</p> <p>Teaching segment: You will individually teach one of the activities (from the lesson plan) to the tutorial for 7 minutes. You will need to locate materials and resources related to the concept you plan to teach, model the teaching of the selected concept by incorporating suitable teaching pedagogy and age-appropriate language and demonstrate good questioning and communication skills (verbal and non-verbal) while you are teaching. The micro-teaching segment should be taught as though the tutorial is your primary-aged science class. Teaching segments will be conducted during Weeks 8, 9 & 10 tutorials.</p>		
CRITERIA:	No.		Learning Outcome assessed
	1	Application of knowledge and understanding of the Australian Curriculum: Science.	1 2
	2	Application of science learning theory and developmentally appropriate pedagogy.	3
	3	Planning and developing learning environments that reflect a sound understanding of scientific concepts at an age-appropriate level.	3 4
	4	Application of written communication skills and academic literacies including English expression grammar, spelling, punctuation, APA referencing conventions.	1
	5	Application of instructional communication skills (verbal and non-verbal) - teaching presence and engagement with peers during the teaching segment.	1 3 4

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	Peter Loxley,Lyn Dawes,Linda Nicholls,Babs Dore	2017	Teaching Primary Science, 3rd Edition	3rd edition	Routledge
Recommended	Michael Allen	2014	Misconceptions in Primary Science	n/a	McGraw-Hill Education (UK)

8.2. Specific requirements

It is your responsibility to attend tutorials/workshops to obtain the course topics and seek clarification. It will be necessary to spend time outside of class preparing for the content exam. There are two weeks in which a laptop will be required for the tutorial. If you don't have one, please make arrangements to share with another student.

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

