COURSE OUTLINE

EDU749 Teaching Junior Secondary Science 1

School: School of Education and Tertiary Access

2025 | Semester 1

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

This course builds capacity to design and discern effective pedagogy within Science for Years 7 -10. You organise and plan lessons using the Australian Curriculum for Science, apply your knowledge, understanding and skills to interpret, evaluate and adapt learning, in order to engage Junior Secondary students. You will develop deep knowledge for integrating general capabilities and cross-curriculum priorities including Aboriginal and Torres Strait Islander perspectives into learning activities and critically reflect on your developing teaching practice.

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 – You are required to attend weekly tutorial/workshop activities on campus.	2hrs	Week 1	10 times

1.3. Course Topics

- Science 'Big Ideas' and the nature of science and scientific literacy
- The Australian Curriculum: Science (ACS): Science Understanding, Science Inquiry Skills and Science as a Human Endeavour
- Science Pedagogies for Years 7 – 10
- Representations, ICT, literacy and numeracy in science education
- Design, planning and organisation of science lessons, learning sequences, practical experiments and inquiry activities
- Setting learning goals and differentiating teaching for a diversity of students
- General Capabilities and Cross-curriculum Priorities including Australian Aboriginal and Torres Strait Islander histories and cultures
- Assessment, feedback and reporting in science

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 On successful completion of this course, you should be able to...	GRADUATE QUALITIES MAPPING Completing these tasks successfully will contribute to you becoming...	PROFESSIONAL STANDARD MAPPING * Australian Institute for Teaching and School Leadership
1 Apply a deep knowledge of the Australian Curriculum Science and pedagogical content knowledge to develop science curriculum materials that provide intellectual quality, significance and quality learning environments.	Knowledgeable Empowered	2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.5
2 Apply a deep knowledge of scientific ideas and laboratory safety procedures to design classroom activities in Science.	Knowledgeable Empowered	2.1, 3.4, 4.1, 4.2, 4.3, 4.4
3 Apply a deep knowledge of diverse student learning needs, and a variety of pedagogical strategies including formative assessment, integration of ICT, literacy and numeracy in learning activities and assessment	Knowledgeable Empowered	3.3, 3.4, 3.6, 4.1, 4.2, 4.3, 4.4, 4.5, 5.1, 5.2, 5.3, 5.4
4 Employ effective language, structure and text to communicate curriculum strategies and ideas.	Knowledgeable Empowered	3.5

* Competencies by Professional Body

CODE	COMPETENCY
AUSTRALIAN INSTITUTE FOR TEACHING AND SCHOOL LEADERSHIP	
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.

CODE	COMPETENCY
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.
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
4.3	Manage challenging behaviour: Demonstrate knowledge of practical approaches to manage challenging behaviour.
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.
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. 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 Science Teaching area or ED508 or ED705

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

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

It is expected that you will draw upon science content knowledge to complete this course that you have studied prior to entry into this program.

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 a group task involving planning and running a science activity suitable for junior secondary students. Your tutor will give you feedback on your one-page activity plan (due Week 3), and your tutor and peers will give you further feedback when you run the activity with your tutorial group (in Week 3 to 8).

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 and Written Piece	Individual and Group	25%	600 word activity plan (individual) plus lead a 20 minute tutorial activity (group).	Refer to Format	Online Assignment Submission with plagiarism check and in class
All	2	Plan	Individual	35%	1000 words lesson plan plus 300 words lesson sequence rationale plus appendices	Week 7	Online Assignment Submission with plagiarism check
All	3	Essay	Individual	40%	2000 words	Week 10	Online Submission

All - Assessment Task 1: Planning and Running a Science Classroom Activity

GOAL:	The goal of this task is to demonstrate your ability to plan and deliver constructive, engaging and inclusive science activities.
PRODUCT:	Oral and Written Piece
FORMAT:	In a small group you will plan, explain and run an activity designed to help junior secondary students deepen their understanding of a science concept. Your presentation activity and written activity plan will include: • Identification of links between your activity and a science concept. • Identification of links between your activity and the Australian Curriculum: Science. • Demonstrated teaching strategies that support engagement, inclusivity and classroom management in Years 7-9 science. • Demonstration of organisational and communication skills used to plan, present and run a science classroom activity. Submission- Activity Plan: Week 3. Tutorial Activities: Weeks 3 to 8.
CRITERIA:	**No.** / **Learning Outcome assessed** 1 Application of deep knowledge of scientific ideas, practices and pedagogy to design classroom activities — 2 2 Application of deep knowledge to cater to diverse student learning needs using a variety of pedagogical strategies — 3 3 Effective language, structure and text to communicate curriculum strategies and ideas — 4
GENERIC SKILLS:	Communication, Collaboration, Organisation

All - Assessment Task 2: Creating a Lesson Plan

GOAL:	The goal of this task is to plan a science lesson and situate it within an ACS lesson sequence.
PRODUCT:	Plan
FORMAT:	You will use a provided template to design a lesson plan (1000 words) plus at least two original resources (student worksheets, ppt slides, etc) that integrate a science demonstration or experiment in a 70 minute lesson within a lesson sequence. You cannot repeat any of the same activities you used in your Task 1, and you must use technology-enabled learning at some stage of your lesson. You will: • apply principles of constructive alignment to develop and integrate lesson goals, learning activities and assessment strategies into a lesson plan • design a constructive learning sequence with strategies (eg. hands-on science, ICT, literacy, numeracy) to support inclusive student participation and engagement in classroom activities. • use knowledge of student learning, science content and effective teaching strategies to situate your lesson in a lesson sequence • plan for classroom management • apply organisational and communication skills
CRITERIA:	

No.		Learning Outcome assessed
1	Application of the Australian Curriculum: Science and pedagogical content knowledge to develop science curriculum materials	1
2	Application of deep knowledge and referring to formative data to cater to diverse student learning needs using a variety of pedagogical strategies	3
3	Application of scientific ideas and laboratory safety procedures to classroom activities in Science	2
4	Effective language, structure and text to communicate curriculum strategies and ideas	4

GENERIC SKILLS:	Problem solving, Organisation, Applying technologies

All - Assessment Task 3: Lesson Plan Evaluation

GOAL:	The goal of this task is to apply education theory and a given pedagogical framework to evaluate and develop your Task 2 science lesson.
PRODUCT:	Essay
FORMAT:	Your essay will evaluate your Task 2 lesson plan with reference to the Australian Curriculum: Science (ACS), the Quality Teaching (QT) Framework, and current well-informed education literature to demonstrate: • a working knowledge of Australian Curriculum: Science General Capabilities (ICT, literacy and numeracy) applied to teaching and learning activities • application of the QT pedagogical model and strategies that underpin quality science learning and teaching • application of formative assessment strategies to evaluate learning outcomes
CRITERIA:	

No.		Learning Outcome assessed
1	Deep knowledge of the Australian Curriculum: Science and pedagogical content knowledge to evaluate a science lesson plan for intellectual quality, significance and quality learning environment.	1
2	Use of formative assessment data to cater to diverse student learning needs using a variety of pedagogical strategies	3
3	Effective language, structure and text to communicate curriculum strategies and ideas	4

GENERIC SKILLS:	Problem solving

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 1 Weeks 1-4 Science for what?	• The Nature of Science • Thinking with Science Big Ideas • Deepening scientific knowledge and understanding • Misconceptions and alternative conceptions • The Australian Curriculum: Science (ACS) • Curriculum scope and sequence • Organising classroom activities • Curriculum Alignment 1: Curriculum Objectives Ref: The Art of Teaching Science, Chapters 1, 2, 3 & 7; The Australian Curriculum: Science; Canvas Learning Materials
Module 2 Weeks 5-10 The Art and Science of Teaching Science	• STEM education, Scientific Literacy and Vocational Science • Curriculum Alignment 2: Lesson Goals and pedagogical decisions • STEM education, Scientific Literacy and Vocational Science • Science Pedagogies • Assessment for Learning - purposeful and efficient assessment strategies to support learning and teaching • The Quality Teaching Framework • ACS General Capabilities: Literacy, Numeracy, ICT, Critical and Creative Thinking • ACS Curriculum Priorities: Aboriginal and Torres Strait Islander Histories and Cultures, Sustainability • Challenging Common Education Myths and Misconceptions Ref: The Art of Teaching Science, Chapters 4, 5, 6, 7, 8; The Australian Curriculum Science; Canvas 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	Vaille Dawson,Grady Venville,Jennifer Donovan	2019	The Art of Teaching Science	3rd Ed	Routledge

8.2. Specific requirements

Not applicable

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:
(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 or using the SafeZone app. For general enquires contact the SafeUniSC team by phone 07 5456 3864 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 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