



COURSE OUTLINE

EDU759

Teaching Junior Secondary Science 2

Course Coordinator: Timothy Strohfeldt (tstrohfe@usc.edu.au) **School:** School of Education and Tertiary Access

2022 | Semester 1

USC Sunshine 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 the USC website 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 is only for students who have two teaching areas in the sciences. In this course you will deepen your knowledge of teaching and the Australian Curriculum: Science by exploring the nexus between curriculum strands, science concepts, science education research, and innovative strategies for learning and communication. You will design, plan and participate in hands-on science activities and investigations suitable for Years 7-10 students.

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	10 times
Tutorial/Workshop 1 – A blended learning approach is used to deliver the tutorial/workshop component of the course. The tutorial/workshops are synchronous, requiring participation in weekly on-campus classes and technology-enabled learning activities.	2hrs	Week 1	10 times
Seminar – Online	1hr	Week 1	6 times
Independent Study/Research – In addition to engaging with the learning materials and workshop sessions and completing the assessable tasks, you are required to engage in self-directed learning using the Canvas course modules and current research/reading via USC library databases and the required/recommended textbooks and resources.	2hrs	Week 1	10 times

1.3. Course Topics

- Australian Curriculum: Science (ACS) – Science Understanding, Science Inquiry Skills and Science as a Human Endeavour.
- Linking the ACS with 'Big Ideas' and teaching and learning activities
- Using ICT, literacy and numeracy in classroom activities
- Reflective practice; responding to students' needs
- Science pedagogy, teaching strategies and managing a Science classroom for student engagement, inquiry learning and active learning for a diversity of middle phase students
- Approaches to Scientific Investigations
- Linking learning theory and practice through planning learning activities and assessment to support and extend a diversity of learners
- Professional practice and risk management in Science classrooms

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 deep knowledge of the Australian Curriculum, Science 'big ideas' and pedagogies for learning, inclusion and engagement to develop a sequence of lesson plans in Science	Knowledgeable Empowered	2.1 - Content and teaching strategies of the teaching area 2.2 - Content selection and organisation 2.3 - Curriculum, assessment and reporting 2.5 - Literacy and numeracy strategies 2.6 - Information and Communication Technology (ICT) 3.1 - Establish challenging learning goals 3.2 - Plan, structure and sequence learning programs 3.3 - Use teaching strategies 3.4 - Select and use resources 4.1 - Support student participation 4.2 - Manage classroom activities 4.3 - Manage challenging behaviour 4.4 - Maintain student safety

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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
<p>2 Apply deep knowledge of inquiry-based pedagogies, classroom management, ICT, literacy, numeracy and laboratory safety to design classroom activities in Science.</p>	<p>Knowledgeable Empowered</p>	<p>2.1 - Content and teaching strategies of the teaching area 2.2 - Content selection and organisation 2.3 - Curriculum, assessment and reporting 2.5 - Literacy and numeracy strategies 2.6 - Information and Communication Technology (ICT) 3.1 - Establish challenging learning goals 3.2 - Plan, structure and sequence learning programs 3.3 - Use teaching strategies 3.4 - Select and use resources 3.6 - Evaluate and improve teaching programs 4.1 - Support student participation 4.2 - Manage classroom activities 4.3 - Manage challenging behaviour 4.4 - Maintain student safety 4.5 - Use ICT safely, responsibly and ethically</p>
<p>3 Professionally reflect and act on principles of curriculum design, implementation and assessment in relation to teaching Science.</p>	<p>Knowledgeable Empowered</p>	<p>2.1 - Content and teaching strategies of the teaching area 2.2 - Content selection and organisation 2.3 - Curriculum, assessment and reporting 2.4 - Understand and respect Aboriginal and Torres Strait Islander people to promote reconciliation between Indigenous and non-Indigenous Australians 3.2 - Plan, structure and sequence learning programs 3.6 - Evaluate and improve teaching programs 4.1 - Support student participation 4.2 - Manage classroom activities 4.3 - Manage challenging behaviour 4.4 - Maintain student safety 4.5 - Use ICT safely, responsibly and ethically 5.1 - Assess student learning 5.2 - Provide feedback to students on their learning 5.3 - Make consistent and comparable judgements 5.4 - Interpret student data 5.5 - Report on student achievement</p>
<p>4 Employ effective language, structure and text to communicate curriculum strategies and ideas.</p>	<p>Knowledgeable Empowered</p>	<p>3.5 - Use effective classroom communication</p>

5. Am I eligible to enrol in this course?

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

5.1. Pre-requisites

Enrolled in Program ED706 and two from Biology, Agriculture, Chemistry, Physics, Marine Science, Psychology or Science Teaching areas

5.2. Co-requisites

EDU749

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

You will work with a group of your peers on Task 1 in tutorials during the first four weeks of the course, Your tutor and peers will exchange ideas and feedback with you as you work on Task 1.

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	Artefact - Creative, and Oral	Group	25%	10 minutes presentation including a short animation	Week 4	In Class
All	2	Artefact - Professional, and Written Piece	Individual	25%	1500 words	Week 7	Online Assignment Submission with plagiarism check
All	3	Artefact - Professional, and Written Piece	Individual	50%	2500 words plus 3 minutes presentation	Week 10	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Active Learning Analysis

GOAL:	The goal of this task is to analyse engagement and learning strategies in a hands-on science activity.
PRODUCT:	Artefact - Creative, and Oral
FORMAT:	“Slowmation” (abbreviated from “Slow Animation”) is a narrated stop-motion animation that tells a story or explains a concept. With 2-3 of your peers, you will produce a short Slowmation to exemplify a Content Description or Elaboration from the Australian Curriculum – Science (ACS). Each group will present their animation in tutorial, and explain: <ul style="list-style-type: none">• the ACS Content Description or Elaboration(s) that has been addressed,• how the Slowmation was designed to represent the Content Description or Elaboration,• ‘learning moments’ your group encountered whilst making it, supported by education literature.

CRITERIA:	No.	Learning Outcome assessed
	1	Application of deep knowledge of the Australian Curriculum Science and science 'big ideas' (concepts). 1
	2	Professional reflection and action on principles of curriculum design and implementation in relation to teaching Science. 3
	3	Employment of language, structure and text to communicate curriculum strategies and ideas 4

All - Assessment Task 2: Infographic and Professional Reflection

GOAL:	The goal of this task is to review and report on a science education issue.	
PRODUCT:	Artefact - Professional, and Written Piece	
FORMAT:	You will create an infographic to communicate details of a given science education issue reported through the academic literature, and write an accompanying reflection of how Years 7-9 science teachers can respond to the issue via teaching and assessment.	
CRITERIA:	No.	Learning Outcome assessed
	1	Professional reflection on principles of curriculum design, implementation and assessment in relation to teaching Science. 3
	2	Employment of effective language, structure and text to communicate curriculum strategies and ideas. 4

All - Assessment Task 3: Lesson and Assessment Module (Unit) Production

GOAL:	The goal of this task is to design a Webquest inquiry-learning module.	
PRODUCT:	Artefact - Professional, and Written Piece	
FORMAT:	<p>"A WebQuest is an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the internet..." (Bernie Dodge).</p> <p>In this task you will create a learning module consisting of an original Webquest for a Year 7, 8 or 9 Australian Curriculum Science (ACS) unit, and an accompanying teachers guide consisting of a general overview of Webquests plus specific advice for your own webquest including ACS alignment, a recommended lesson sequence plan and recommendations for classroom management. You will upload your Webquest and your teacher's guide to Canvas, and you will also present your Webquest to your tutor and peers during tutorial.</p>	
CRITERIA:	No.	Learning Outcome assessed
	1	Presentation: Employment of effective language, structure and text to communicate curriculum strategies and ideas. 4
	2	Webquest Learning Module: Application of deep knowledge of the Australian Curriculum, Science 'big ideas' and pedagogies for learning, inclusion and engagement to to evaluate a Science lesson sequence 1
	3	Webquest Learning Module: Application of deep knowledge of inquiry-based pedagogies, classroom management, ICT, literacy, numeracy and laboratory safety to design classroom activities in Science 2
	4	Webquest Learning Module: Professional reflection and action on principles of curriculum design, implementation and assessment in relation to teaching science. 3

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. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
Module 1 Weeks 1-3 Active Learning	Exploring middle-phase pedagogies for inclusion, engagement and scientific literacy. Student-centred approaches to Curriculum design . Diagnosing student thinking to identify conceptions and misconceptions. Science-pedagogy content knowledge. Reflecting on and evaluating teaching and learning activities with special focus on learner-generated animations.
Module 2 Weeks 4-5 Facilitating engagement and learning for middle-phase science students	Considering students' needs during the primary to lower secondary school transition. STEM Education. Evaluating scientific activities for middle-phase classrooms. Science education literature review. Exploring, reflecting on and planning with teaching and learning activities.
Module 3 Weeks 6-10 Student-centred learning and authentic assessment	Evaluating scientific activities for middle-phase classrooms. Examining teaching resources including ICT and its use in science teaching and assessment. Developing literacy and numeracy through Science. Designing inquiry-based activities to develop conceptual understanding, scientific literacy and critical and creative thinking skills. Exploring, reflecting on and planning with teaching and learning activities with special focus on Webquests. Developing inquiry-based learning and teaching plans and resources. Planning lesson sequences. Exploring assessment, evaluation, feedback, moderation, and reporting in science. Designing assessment schema

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	Vaile 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?

Risk assessments have been performed for all 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:

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. SafeUSC

USC 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 SafeUSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUSC team by phone [07 5456 3864](tel:0754563864) or email safe@usc.edu.au.

The SafeUSC 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
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.9. Student Charter

USC 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:

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

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au