



COURSE OUTLINE

EDU353

Teaching Senior Secondary Science 1

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

2021 | Semester 2

USC Sunshine Coast

ON CAMPUS

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 explores the Queensland Senior Curriculum, pedagogy, assessment and reporting of Senior Secondary Science, Years 11 and 12. You will learn about current trends and best practice in science education. You will apply your science and pedagogical knowledge to design quality senior secondary learning activities and assessment tasks for the Queensland senior science curriculum.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS			
Tutorial/Workshop 1 – 2hr per week on-campus tutorial workshops	2hrs	Week 1	10 times
Lecture – 2 hr per week online recorded lecture and associated learning activities	2hrs	Week 1	10 times

1.3. Course Topics

Queensland Senior Science Curricula Curriculum planning and alignment of content, pedagogy and assessment for senior science

Teaching and learning strategies for engagement of diverse learners in science

Assessment and reporting practices in senior science

Designing science investigations

Laboratory safety and risk assessment

Integrating resources including information and communication technologies (ICT) into science curriculum

Literacy and numeracy in senior science

Embedding Aboriginal and Torres Strait Islander histories, culture and knowledge in senior science curriculum

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 your application of science content and Senior Science curriculum knowledge in developing science inquiry sequences, teaching and learning activities and assessment.	Creative and critical thinker Engaged	2 - Know the content and how to teach it 3 - Plan for and implement effective teaching and learning
2 Apply knowledge of teaching and learning strategies that support the diversity of learners communication in senior science.	Creative and critical thinker Engaged	2 - Know the content and how to teach it 3 - Plan for and implement effective teaching and learning 4 - Create and maintain supportive and safe learning environments
3 Apply understandings of principles of assessment and reporting that monitor senior students' levels of achievement and progress in senior Science.	Creative and critical thinker Engaged	5 - Assess, provide feedback and report on student learning
4 Apply knowledge of planning, resourcing, teaching and managing to create learning experiences for students of Senior Secondary Science	Creative and critical thinker Engaged	2 - Know the content and how to teach it 3 - Plan for and implement effective teaching and learning 4 - Create and maintain supportive and safe learning environments
5 Employ effective language, structure and text to communicate curriculum strategies and ideas.	Knowledgeable	3 - Plan for and implement effective teaching and learning

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 (AE304 and a Biological Sciences or a Chemical Sciences Extended Minor) or (SE303 and a Biological or a Chemical Sciences Major or Extended Minor) or (ED315 and a Marine Science Minor)

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 students engaging in this course have undertaken tertiary science content courses that will be drawn upon to complete this course.

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

Assessor feedback around Task 1a (Week 3) will assist you with subsequent assessment tasks.

Task 1a (Weeks 4-6), gives you the opportunity to contribute and share ideas and outcomes with your peers via tutorial presentations.

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	20%	Part A: 600 words Part B: <5 minutes	Refer to Format	In Class
All	2	Examination	Individual	35%	2 x 25 minutes: Part 1: Senior Secondary Quiz A/ B (20%) Part 2: Teaching Area Quiz (15%)	Refer to Format	Online Test (Quiz)
All	3	Portfolio	Individual	45%	1700 words	Week 10	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Evaluating Context-based Science

GOAL:	The goal of this task is to evaluate the contribution of context to science education and to demonstrate your ability to apply indigenous Australian science context for teaching and learning senior science. For students who do two science teaching areas this task is for Teaching Area 1. For example if you do a Biological Science major and a Chemical Science minor then this will be a Biology task.	
PRODUCT:	Oral and Written Piece	
FORMAT:	Part 1 Written Piece due in Week 3: You will summarise and reflect on the findings of a provided article on context-based learning in secondary school science curricula. Part 2 Presentation in tutorial Week 4, 5 or 6.: you will deliver a multimodal presentation of an example of Australian Indigenous History/Culture related to your Teaching Area, identify how it can link with QCAA senior syllabus Unit Objectives and Subject Matter and elaborate how it could influence your classroom curriculum.	
CRITERIA:	No.	Learning Outcome assessed
	1	Knowledge of integrating Aboriginal and Torres Strait Islander histories and cultures to engage a diversity of learners 2
	2	Evaluation of context-based science for learning and engagement 1
	3	Employ effective language, structure and text to communicate curriculum strategies and ideas 5

All - Assessment Task 2: Exam

GOAL:	The goal of this task is to demonstrate your knowledge of the senior secondary lecture topics and discipline-specific curriculum and pedagogical content knowledge.							
PRODUCT:	Examination							
FORMAT:	<p>PART A: The Senior Secondary Quiz You will participate in a 25-minute online Quiz during your lecture in week 6 to demonstrate your understanding of senior secondary curriculum. 20 questions will cover topics from the Senior Secondary Lecture Series including:</p> <ul style="list-style-type: none"> • History of senior schooling in Queensland • Types of senior secondary syllabuses • Role of cognitive verbs in senior secondary syllabuses and assessment • Curriculum design and alignment • ATAR and QCE processes for senior secondary • Access and reasonable adjustment for senior secondary assessment • Diagnostic, formative, summative assessment and reporting in senior secondary • Summative assessment feedback and moderation practices in senior secondary • The role of literacy and numeracy and 21st century skills in senior secondary <p>You will require access to your own mobile device to undertake the examination during the lecture time.</p> <p>PART B: The Teaching Area Quiz The second 25-minute online quiz in Week 9 will provide you with the opportunity to demonstrate your knowledge and understanding of topics from your tutorials including:</p> <ul style="list-style-type: none"> • Curriculum, planning and teaching strategies that engage senior students, and their application in your senior syllabus • Discipline-specific pedagogical and content knowledge for your senior secondary teaching area • Safety and Management of student activities • Teaching strategies involving ICT, literacy and numeracy in your teaching area • Integration of 21st century skills in your teaching area <p>You will require access to your own mobile device to undertake the examination during the lecture time.</p>							
CRITERIA:	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Knowledge and understanding senior secondary curriculum, teaching strategies, assessment, moderation and reporting practices.</td> <td>1 2 3 4</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	Knowledge and understanding senior secondary curriculum, teaching strategies, assessment, moderation and reporting practices.	1 2 3 4	
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1	Knowledge and understanding senior secondary curriculum, teaching strategies, assessment, moderation and reporting practices.	1 2 3 4						

All - Assessment Task 3: Curriculum, Pedagogy and Assessment Portfolio

GOAL:	The goal of this task is to demonstrate your understanding and applications of curriculum, pedagogy and assessment in your Senior Secondary Teaching Area.	
PRODUCT:	Portfolio	
FORMAT:	<p>For students who have two science teaching areas this is for teaching area 1. For example, if you do a Biological Science major and a Chemical Science minor then this will be a Biology task.</p> <p>Select one internal assessment (IA) sample task from QCAA; either a Student Experiment (SE) or Research Investigation (RI).</p> <ul style="list-style-type: none"> • Identify how the selected internal assessment task directly or indirectly connects to the final level of achievement awarded for this subject. • Critically analyse the sample task, identifying the intent, strengths and weaknesses of the task based on the syllabus and contemporary literature. • Discuss the suitability of the sample task to the corresponding QCAA unit, and how this would influence your pedagogical approach. • Describe and justify one modification you could make to the task to improve student engagement, learning and/or level of achievement without compromising assessment integrity. • Describe and justify a sequence of three lessons that relate to the module/unit of study and illustrate your knowledge of: <ol style="list-style-type: none"> a. syllabus content knowledge b. discipline-specific pedagogy c. learning goals that create achievable challenges d. range of teaching strategies e. management and resources f. responsive formative assessment design 	

CRITERIA:	No.	Learning Outcome assessed
	1	Application of Science content knowledge and Senior Secondary Science curriculum knowledge in developing teaching and learning activities. 1
	2	Application of knowledge of teaching and learning strategies that support a diversity of learners. 2
	3	Planning, resourcing and managing learning experiences for students of Senior Secondary Science. 3 4
	4	Employment of effective language, structure and text to communicate curriculum strategies and ideas 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. Directed study hours may vary by location. 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 Blackboard 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	PUBLISHER
Required	Venville, G., Dawson, V. & Donovan, J.	2019	The Art of Teaching Science: A comprehensive guide to the teaching of secondary school science. 3rd Edition	n/a

8.2. Specific requirements

You will need a lab coat for tutorials.

9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a moderate level of health and safety risk exists. Moderate risks are those associated with laboratory work such as working with chemicals and hazardous substances. You will be required to undertake laboratory induction training and it is also 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 Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

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. 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.

10.5. 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.

10.6. 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.

10.7. 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: <http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.8. 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