EDCU12040 *Biological and Earth and Space Sciences*
Term 1 - 2017

Profile information current as at 04/05/2024 07:06 am

General Information

Overview
Biological and Earth and Space Sciences develops understanding of both the content and pedagogy required to teach Science in Primary and Early Childhood classrooms. Students are introduced to concepts around how children learn Science; the importance of Science education in an Australian and international context; and current views around effective pedagogical practice linked to research. The focus on pedagogy will be linked to two content areas from the Australian Curriculum: Biological sciences and Earth and Space sciences.

Details
Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *7*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
There are no requisites for this unit.
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 1 - 2017

- Bundaberg
- Distance
- Mackay
- Noosa
- Rockhampton

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Presentation**
Weighting: 50%
2. **Practical and Written Assessment**
Weighting: 50%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Student evaluations

Feedback
Resources were very effective

Recommendation
Maintain video resources

Action
Review of resources for curriculum currency mapped against ACS

Feedback from Self reflection and student evaluations

Feedback
Both assignments are digital based and can be difficult for some students.

Recommendation
Modify assessments slightly to include written script submission with Pecha Kucha

Action
Written script to be included in digital submission. Explicit teaching of digital publishing skills (video) to be embedded.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Evaluate examples of teaching practice in science to identify how connections are made to students' prior knowledge or experience to promote learning and inform pedagogical practice.
2. Access/evaluate and apply professional literature on contemporary science education to develop a rationale for learning design.
3. Analyse and incorporate content that recognises the experience of Aboriginal and Torres Strait Islander students in the science classroom.
4. Select teaching and learning strategies that promote higher order thinking and scaffold students' understanding of core concepts in the areas of Biological and Earth and Space sciences.
5. Create learning resources in which learner engagement is transformed by the use of ICT for collaboration and inquiry.

This unit includes outcomes incorporating focus areas of the Australian Professional Standards for Teachers which must be demonstrated at Graduate Level for Professional Registration. Specifically, the outcomes focus on the following standards from the Professional Knowledge and Professional Practice domains:
Standard 1: Know students and how they learn;
Standard 2: Know the content and how to teach it;
Standard 3: Plan for and implement effective teaching and learning; and
Standard 4: Create and maintain safe and supportive learning environments.
Assessment develops discipline-specific knowledge from the Science learning area for demonstration of the following focus area descriptors: 1.1, 1.2, 1.4, 2.1, 2.2, 2.6, 3.3, 3.4 and 4.1. This knowledge will be built on and applied during work-integrated learning placements in educational settings throughout the course of study to support collection of evidence of meeting these standards at Graduate level.

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level · ● Introductory Level · ● Intermediate Level · ● Graduate Level · ○ Professional Level · ○ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Presentation - 50%	•	•	•		
2 - Practical and Written Assessment - 50%		•		•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Communication	•	•			•
2 - Problem Solving			•	•	•
3 - Critical Thinking	•	•	•	•	•
4 - Information Literacy	•	•	•	•	
5 - Team Work					
6 - Information Technology Competence				•	•
7 - Cross Cultural Competence	•		•		
8 - Ethical practice					
9 - Social Innovation					
10 - Aboriginal and Torres Strait Islander Cultures					

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Presentation - 50%	•	•	•	•		•	•			
2 - Practical and Written Assessment - 50%	•	•	•	•		•	•			

Textbooks and Resources

Textbooks

EDCU12040

Prescribed

Connecting with science education
Edition: 1st (2012)
Authors: Gregson, Robyn (ed)
Oxford University Press
Melbourne , VIC , Australia
ISBN: 9780195575309
Binding: Hardcover
EDCU12040

Prescribed

Teaching primary science: promoting enjoyment and developing understanding
Edition: 2nd (2014)
Authors: Loxley et. al.
Routledge
New York , NY , America
ISBN: 9780273772989
Binding: Hardcover

Additional Textbook Information
Please note that both texts will be used again for EDCU13017 Chemical and Physical Sciences in Term 2, 2017.

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: American Psychological Association 6th Edition (APA 6th edition)
For further information, see the Assessment Tasks.

Teaching Contacts

Colin Baskin Unit Coordinator
c.baskin@cqu.edu.au

Schedule

Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Theoretical Frameworks in Science	Gregson Text Chapters 1 and 2	

Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Curriculum Design	Gregson Text Chapter 3	

Week 3 - 20 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Learning and Teaching Scientifically	Gregson Text Chapter 4	

Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Aboriginal and Torres Strait Islander perspectives	Resources are located on the Moodle site	

Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Scientific Thinking	Gregson Text Chapter 7	

Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Engagement Strategies	Gregson Text Chapters 5 and 6	**Presentation** Due: Week 6 Thursday (20 Apr 2017) 11:45 pm AEST

Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Digital Approaches to Learning	Gregson Text Chapter 9	

Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Biological Sciences	Loxley Text Chapters 12 - 15	

Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Biological Sciences	Loxley Text Chapters 12 - 15	

Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Earth and Space Sciences	Loxley Text Chapters 10 - 11	

Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Earth and Space Sciences	Loxley Text Chapters 10 - 11	

Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Unit Review		**Written Assessment** Due: Week 12 Thursday (1 June 2017) 11:45 pm AEST

Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Presentation

Assessment Type
Presentation

Task Description
Prepare and deliver a "Pecha Kucha 20 x 20" presentation on one of the 15 research topics provided on the course Moodle site. Topics focus on contemporary issues in Science education and research including how children learn Science, the structure of the curriculum, and so on.
You need to demonstrate your understanding of key concepts in the strands of either Biology or Earth and Space Science **AND** incorporate relevant research on the experience, culture and/or scientific knowledge of Aboriginal and Torres Strait Islander peoples and ways in which their ways of knowing can complement the development of Western scientific knowledge. Further detail about this assessment task can be found on the Moodle site.

Assessment Due Date
Week 6 Thursday (20 Apr 2017) 11:45 pm AEST

Return Date to Students

Feedback on this assessment response will be provided in sufficient time to allow for academic support and advice as necessary to inform students' responses to the next task.

Weighting
50%

Assessment Criteria
Knowledge and understanding of the content, concept development and teaching strategies of the Science curriculum.
Demonstrated understanding of Aboriginal and Torres Strait Islander peoples ways of knowing.
Use of authoritative sources to justify and explain approaches to science teaching that promote learning and enjoyment.
Identification and explanation of issues in contemporary science education and pedagogy.
Australian Professional Standards for Teachers:
1.1 Physical, social and intellectual development and characteristics of students
1.2 Understand how learners learn
1.4 Strategies for teaching Aboriginal and Torres Strait Islander students
2.1 Content selection and organisation

Referencing Style

- American Psychological Association 6th Edition (APA 6th edition)

Submission
Online

Submission Instructions
Submit in pptx format with sound/audio enabled.

Learning Outcomes Assessed

- Evaluate examples of teaching practice in science to identify how connections are made to students' prior knowledge or experience to promote learning and inform pedagogical practice.
- Access/evaluate and apply professional literature on contemporary science education to develop a rationale for learning design.
- Analyse and incorporate content that recognises the experience of Aboriginal and Torres Strait Islander students in the science classroom.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

2 Written Assessment

Assessment Type
Practical and Written Assessment

Task Description
Part A: Use professional literature to write a brief description of two different *pedagogies* for science teaching (500 - 800 words).

Part B: Develop TWO digital task cards that could be used to scaffold independent learning in Science. The cards should demonstrate a clear understanding of the *pedagogies* selected in Part A (one card for each *pedagogy*) **and** use content from the strands of Biological (for one card) and Earth and Space Sciences (for the other card). The cards should cover a range of activities and include:

- A card suitable for use by learners in a Primary classroom (select one year level from Prep to Year 6). This card must be printable and suitable for the age group to use with some teacher support.
- A second card for use with early childhood learners (ages 0 - 5 years) **OR** a year level from Year 7 to Year 9 (depending on your enrolment within the Early Childhood program or the Primary program) which scaffolds the use of an online simulation. This card must include teacher instructions for use in the classroom.

Each card should contain hyperlinks that identify the scientific understanding and skills from the curriculum that it supports and teaching ideas for use of the card in the classroom.

Assessment Due Date
Week 12 Thursday (1 June 2017) 11:45 pm AEST

Return Date to Students

Feedback on this assessment response will be provided in sufficient time to allow for academic support and advice as necessary to inform students' responses to the next task.

Weighting
50%

Assessment Criteria
Knowledge and understanding of the use of ICTs in supporting student centred learning and engagement.
Demonstrated knowledge of the content and structure of the chosen strands of the Science curriculum.
Relevance of the resources and chosen strategies for the target group and learners' developmental stages.
Selection of teaching strategies that show understanding of approaches that support the processes of working scientifically.
Australian Professional Standards for Teachers:
2.1 Content and teaching strategies of the teaching area
2.2 Content selection and organisation
2.6 Information and Communication technology (ICT)
3.3 Use teaching strategies
3.4 Select and use resources
4.1 Support student participation

Referencing Style

- American Psychological Association 6th Edition (APA 6th edition)

Submission
Online

Learning Outcomes Assessed

- Access/evaluate and apply professional literature on contemporary science education to develop a rationale for learning design.
- Select teaching and learning strategies that promote higher order thinking and scaffold students' understanding of core concepts in the areas of Biological and Earth and Space sciences.
- Create learning resources in which learner engagement is transformed by the use of ICT for collaboration and inquiry.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem