Unit Outline (Higher Education)

Institute / School:	Institute of Education, Arts & Community
Unit Title:	SCIENCE CURRICULUM 1
Unit ID:	EDMAS6017
Credit Points:	15.00
Prerequisite(s):	(Undergraduate Study in Appropriate Degree)
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	070105

Description of the Unit:

This course is the first in a sequence of two that focuses on curriculum and pedagogy in the Science specialist teaching area for postgraduate Pre-Service Teachers (PSTs). It provides PSTs with an understanding of the nature of science, the role of science in our community, and the changing role of science education. PSTs explore a range of approaches to teaching Science within a constructivist paradigm and examine ways to develop scientifically literate students.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate						
Advanced					✔	

Learning Outcomes:

Knowledge:

K1. Develop understandings about the nature of Science as a constantly developing field of knowledge and the processes of scientific thinking which support this development.

K2. Know about recent developments in Science and how Science impacts on the everyday world.

K3. Gain understanding of contemporary curriculum policies and guidelines relevant to teaching and assessing Science in the middle years.

K4. Be aware of a range of theoretical and pedagogical approaches, including constructivism, relevant to learning and teaching in Science.

K5. Demonstrate specific teaching strategies related to Science.

K6. Examine different ways of collecting data about student learning.

K7. Develop an understanding of scientific literacy and the teaching of global issues including sustainability and ethics.

Skills:

S1. Reflect critically on practice, make positive use of feedback and learn in ongoing ways about teaching Science.

S2. Use appropriate theoretical frameworks and a range of effective and inclusive teaching strategies to produce effective and engaging learning experiences which cater for a range of learners.

S3. Articulate and justify planning, teaching and assessment practices.

S4. Use a variety of resources in the classroom to enhance learning.

S5. Communicate effectively with learners and colleagues.

S6. Develop skills in the collection of formative assessment data.

S7. Structure scientific teaching in response to global issues such as sustainability and ethics.

Application of knowledge and skills:

A1. Create a lesson series on a science concept for middle years students.

A2. Build a six-week unit of curriculum related to global issues.

Unit Content:

- Examining science as a field of human knowledge and endeavour, the links between science and other areas of knowledge and between the traditional science disciplines.
- A critical evaluation of teaching approaches and dispositions, strategies and resources and their application in Science, including constructivism and scaffolding, inquiry and discovery learning, strategies for building subject-specific literacy, numeracy and practical work.
- Science teaching - using curriculum policies and guidelines for lesson planning, implementation, teaching, evaluation, reflection and assessment purposes
- Critical examination of educational, social and cultural issues that impact on Science education and how these might be addressed.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		**Development and acquisition of FEDTASKS in the Unit**	
		Learning Outcomes (KSA)	**Assessment task (AT#)**
FEDTASK 1 Interpersonal	Students at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: • Using and demonstrating a high level of verbal and non-verbal communication • Demonstrating a mastery of listening for meaning and influencing via active listening • Demonstrating and showing empathy for others • High order skills in negotiating and conflict resolution skills • Demonstrating mastery of working respectfully in cross-cultural and diverse teams.	K4, K5, S2, S4, S5, A1	AT1
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. • Creating and sustaining a collegial environment • Demonstrating a high level of self -awareness and the ability to self-reflect and justify decisions • Inspiring and initiating opportunities to lead others • Making informed professional decisions • Demonstrating initiative in new professional situations	K1, K2, K6, S1, S2, A3.	AT1, AT2
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: • Reflecting critically to generate and consider complex ideas and concepts at an abstract level • Analysing complex and abstract ideas, concepts and information • Communicate alternative perspectives to justify complex ideas • Demonstrate a mastery of challenging conventional thinking to clarify complex concepts • Forming creative solutions in problem solving to new situations for further learning	K1, K2, K6, S2, A1, A3.	AT1, AT2.

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: • Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally • Collating, managing complex data, accessing and using digital data securely • Receiving and responding professionally to messages in a range of professional digital media • Contributing competently and professionally to digital teams and working groups • Participating at a high level in digital learning opportunities	Not applicable	Not applicable
FEDTASK 5 sustainable and Ethical Mindset	Students at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: • Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts • Professionally committing to the promulgation of social responsibility • Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others • Generating, leading and implementing required actions to foster sustainability in their professional and personal life.	K6, S7, A3.	AT2.

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K5, K6, S1, S2, S3, S4, S5, S6, A1; APST: 2.1, 2.2, 2.5, 3.1, 3.2, 3.3, 3.4, 4.1	Construct a series of lesson plans that teach a scientific concept and literacies to middle years students. Present a practical lesson to peers. Collect data based on feedback from peers.	Lesson plan and peer teaching	30 - 50%
K1, K2, K3, K4, K6, K7, S2, S3, S4, S6, S7, A2; APST: 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 5.1	Develop a curriculum planner that responds to global issues (sustainability, ethics, etc.) for a 6-week unit of work for middle years Science that includes details of lessons and a map of formative and summative assessment tasks.	Development of a curriculum resource	50-70%

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a Course level. Although Units must undertake MiCS mapping, there is NO expectation that Units will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students

3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS Course level reporting highlights how each Course embraces the principles and practices associated with the Co-Operative Model. Evidence of Course alignment with the MiCS, can be captured in the Course Modification Form.

MICS Mapping has been undertaken for this Unit No

Date:

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - referencing tool