



Unit Outline (Higher Education)

Institute / School:	Institute of Education, Arts & Community
Unit Title:	SENIOR SCIENCE CURRICULUM
Unit ID:	EDMAS6018
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 designed to introduce pre-service teachers to the philosophy and structure of the Victorian Certificate of Education and the requirements of teaching classes in Units 1, 2, 3, and 4 of the VCE. Pre-service teachers will relate their work to Physics, Chemistry, Biology or Environmental Science.

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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:**Knowledge:**

- K1.** Articulate a sound knowledge of the VCE Study Designs in Biology, Chemistry, Physics or Environmental Science particularly in Units 1 and 3.
- K2.** Display a solid knowledge of the appropriate biological, chemical, physical or earth & space sciences, the relationship to educational contexts, and how they interact in effective teaching.
- K3.** Understand the rationale, methodology and teaching strategies relevant to VCE Biology, Chemistry, Physics or Environmental Science and how these subjects relate to the teaching of Science.
- K4.** Examine resources relevant to the teaching of Biology, Chemistry, Physics or Environmental Science at VCE level.
- K5.** Identify the links between effective planning, teaching, and assessment areas.

Skills:

- S1.** Devise valid methods for assessment in VCE Units 1 and 3 in line with VCE guidelines for Biology, Chemistry, Physics or Environmental Science.
- S2.** Trial and evaluate teaching approaches for Biology, Chemistry, Physics or Environmental Science, using theoretical frameworks and practical ability to produce effective learning for a wide range of students.
- S3.** Select and use a variety of technologies in the classroom in order to assist learning.
- S4.** Communicate effectively and articulate and justify decisions related to practice.

Application of knowledge and skills:

- A1.** Create and deliver a series of VCE Unit 1 lessons in senior science.
- A2.** Create a curriculum plan related to VCE Unit 3 in senior science.

Unit Content:

- The Victorian Certificate of Education: the structure, role of VCAA and assessment approaches where formative assessment is used to inform the summative assessment.
- The specific structure and content in VCE Units 1, 2, 3 and 4 in Biology, Chemistry, Physics or Environmental Science with a focus on Units 1 and 3, and the organisation of this into an effective learning and teaching sequence.
- Discussion of methodology and teaching strategies to engage students in VCE Biology, Chemistry, Physics or Environmental Science with particular focus on clear directions for laboratory work, incorporation of ICT, demonstrations, safety in all areas, activity based learning and classroom management.
- Evaluation and assessment issues at VCE level, issues at the school level for Unit 1 and school assessed coursework introduction at Unit 3.
- Preparing students with a range of abilities for examinations (VCAA) in Biology, Chemistry, Physics, and Environmental Science.

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**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are 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	<p>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:</p> <ul style="list-style-type: none"> • 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. 	K1, K2, K3, K4, K5, S1, S2, S3, S4, A1, A2	AT1, AT2
FEDTASK 2 Leadership	<p>Students at this level will demonstrate a mastery in professional skills and behaviours in leading others.</p> <ul style="list-style-type: none"> • 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, K3, K4, K5, S1, S2, S3, S4, A1, A2	AT1, AT2
FEDTASK 3 Critical Thinking and Creativity	<p>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:</p> <ul style="list-style-type: none"> • 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, K3, K4, K5, S1, S2, S3, S4, A1, A2	AT1, AT2
FEDTASK 4 Digital Literacy	<p>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:</p> <ul style="list-style-type: none"> • 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 	K1, K2, K3, K4, K5, S1, S2, S3, S4, A1, A2	AT1, AT2

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
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: <ul style="list-style-type: none"> • 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. 	K1, K2, K3, K4, K5, S1, S2, S3, S4, A1, A2	AT1, AT2

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, K5, S1, S2, S3, S4, A1; ATSL: 2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.5, 4.1, 4.2, 5.1	Plan, teach and provide a rationale for a series of lessons, incorporating a range of teaching strategies, and related to key knowledge from an Area of Study in VCE Unit 1 in Biology, Chemistry, Physics or Environmental Science.	Teaching performance and planning	40% - 60%
K1, K2, K3, K4, K5, S1, S2, S3, S4, A2; ATSL: 2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.5, 4.1, 4.2, 5.1	Design and justify a curriculum plan including a formative and summative assessment map for an Area of Study in VCE Unit 3 in Biology, Chemistry, Physics or Environmental Science.	Curriculum and Assessment Design	40-60 %

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](#)

Professional Standards / Competencies:
Australian Professional Standards for Teachers (AITSL) - Graduate Teacher: Initial

Attribute	Assessed	Level
Professional Knowledge		
2. Know the content and how to teach it		
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.	Yes	Advanced
2.2 Content selection and organisation Organise content into an effective learning and teaching sequence.	Yes	Advanced
2.3 Curriculum, assessment and reporting Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.	Yes	Advanced
2.5 Literacy and numeracy strategies Know and understand literacy and numeracy teaching strategies and their application in teaching areas.	Yes	Advanced
Professional Practice		
3. Plan for and implement effective teaching and learning		
3.1 Establish challenging learning goals Set learning goals that provide achievable challenges for students of varying abilities and characteristics.	Yes	Advanced
3.2 Plan, structure and sequence learning programs Plan lesson sequences using knowledge of student learning, content and effective teaching strategies.	Yes	Advanced
3.3 Use teaching strategies Include a range of teaching strategies.	Yes	Advanced
3.4 Select and use resources Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.	Yes	Advanced
3.5 Use effective classroom communication Demonstrate a range of verbal and non-verbal communication strategies to support student engagement.	Yes	Advanced
4. Create and maintain supportive and safe learning environments		

<p>4.1 Support student participation Identify strategies to support inclusive student participation and engagement in classroom activities.</p>	<p>Yes</p>	<p>Advanced</p>
<p>4.2 Manage classroom activities Demonstrate the capacity to organise classroom activities and provide clear directions.</p>	<p>Yes</p>	<p>Advanced</p>
<p>5. Assess, provide feedback and report on student learning</p>		
<p>5.1 Assess student learning Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.</p>	<p>Yes</p>	<p>Advanced</p>