

# Unit Outline (Higher Education)

<b>Institute / School:</b>	Institute of Education, Arts & Community
<b>Unit Title:</b>	Mathematics, Numeracy and Learner Engagement 1
<b>Unit ID:</b>	EDMAS6039
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	Nil
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	(EDFGC5713)
<b>ASCED:</b>	070103

## Description of the Unit:

This unit is designed to develop an understanding of the learning and teaching of mathematics and numeracy. This unit is designed to engage students in critical readings on current research and practice in numeracy education and practical learning strategies. Students will design engaging learning activities in different mathematical content, within and beyond the mathematical curriculum. There is an emphasis on designing research-informed lesson plans and sequences to cater for a range of students from various sociocultural and educational contexts. Students use and apply learning technologies that cater to diverse learners. These activities are informed by current educational policy and curriculum. Pre-service teachers will develop academic and personal communication skills, self-reflection, personal learning, and delivering and responding to peer feedback.

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

## Work Experience:

No work experience

**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.** Explore theories about how teachers and students construe and learn mathematics.
- K2.** Examine a broad range of theories and approaches relating to the learning and teaching of mathematics, especially to diverse learners.
- K3.** Compare a range of theories and practices relating to the learning and teaching of mathematics, including explicit teaching, problem-solving and the development of thinking skills.
- K4.** Explore the curriculum associated with teaching mathematics to primary students, both the strands and proficiencies.

**Skills:**

- S1.** Develop skills relating to the teaching and learning of mathematics
- S2.** Reflect on the pedagogy associated with the teaching and learning of mathematics, including explicit teaching, problem-solving and the development of thinking skills.
- S3.** Develop skills in their personal mathematical competence.
- S4.** Critically and creatively interpret the current mathematics curriculum in both the content strands and proficiencies.
- S5.** Critically examine the role of technology in mathematics education.

**Application of knowledge and skills:**

- A1.** Develop engaging mathematics lesson plans that cater for a range of students and improve students' understanding within and beyond the mathematics curriculum.
- A2.** Apply research and contemporary mathematics and numeracy education practices to meet diverse learners' needs relating to mathematical content and proficiencies.
- A3.** Identify and employ a range of ICT tools and strategies to support children's learning in mathematics and numeracy in line with local and Australian Curriculum.

**Unit Content:**

Topics may include:

- Knowledge and understanding of the concepts related to mathematics and numeracy, as described in the curriculum. This includes both the content strands and proficiencies.
- Language of mathematics and mathematical language reading, writing, and speaking mathematics.
- Know and understand literacy and numeracy teaching strategies and their application to teaching and learning mathematics within and beyond the mathematics curriculum.
- Organise content into engaging, effective learning and teaching sequences.
- Use curriculum to design learning sequences and lesson plans that cater to a range of students, including

students with diverse needs, EAL, and students from diverse cultures.

- Understand how students learn, with reference to research, education theory, education department policy, and the implications for teaching.
- Examination of strategies for teaching mathematics, including explicit numeracy instruction, problem-solving and the development of mathematical thinking skills.
- Learning in an academic community.

## 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	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.	Not applicable	Not applicable
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.	Not applicable	Not applicable
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.	Not applicable	Not applicable

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: <ul style="list-style-type: none"> <li>• Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally</li> <li>• Collating, managing complex data, accessing and using digital data securely</li> <li>• Receiving and responding professionally to messages in a range of professional digital media</li> <li>• Contributing competently and professionally to digital teams and working groups</li> <li>• Participating at a high level in digital learning opportunities.</li> </ul>	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: <ul style="list-style-type: none"> <li>• Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts</li> <li>• Professionally committing to the promulgation of social responsibility</li> <li>• Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses</li> <li>• Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others</li> <li>• Generating, leading and implementing required actions to foster sustainability in their professional and personal life</li> </ul>	Not applicable	Not applicable

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S1, S2, S3, S4, A2, A3	A series of reflective pieces of academic writing. Critical reflective analysis pieces responding to current issues in mathematics education, including the teaching and learning of content strands and proficiencies.	Journal	40-60%
K1, K2, K3, K4, S1, S2, S3, S4, A1, A2, A3	Design learning activities for students in line with mathematics curriculum. Reflect on the planned activities and how they link with the learning and teaching theories delivered in the unit.	Teaching Activity & Reflection	40-60%
K4, S1, S5, A3	Digital technology evaluation task	Hurdle task	S/U

### Adopted Reference Style:

APA ()

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)