

Unit Outline (Higher Education)

Institute / School: Institute of Education, Arts & Community

Unit Title: Learning and Teaching Mathematics A

Unit ID: EDBED1012

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (EDBED1006 and EDFGC2021)

ASCED: 070103

Description of the Unit:

This course extends understandings about how mathematical understanding and thinking skills are developed through childhood and as children transition to school and through to the middle years. It incorporates a focus on the students themselves as learners of mathematics and mathematical practices, and highlights how mathematics teaching and mathematical activities develop learning. This course considers ways in which people use mathematics to solve real world problems and how to link mathematics to the learner's everyday life. It examines a range of teaching strategies and investigates current curricula documents and the sequential nature of learning.

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.** Understand the concepts, substance, and structure of the content and effective teaching strategies for Mathematics at a primary level.
- K2.** Evaluate theories about how people construe and learn mathematics.
- K3.** Compare a range of theories and approaches relating to the learning and teaching of mathematics and related issues.
- K4.** Experiment with the application and integration of technology in mathematical investigations and presentations.

Skills:

- S1.** Construct skills relevant to the teaching and learning of mathematics.
- S2.** Use the current policy documents as a guide to develop curriculum.
- S3.** Reflect on the thinking processes associated with the teaching and learning of Mathematics.
- S4.** Incorporate appropriate technology in the learning of Mathematics.
- S5.** Develop assessment strategies as a basis for evaluation and informing future planning
- S6.** Utilise simple coding language to instruct a computer application or device to perform certain functions.

Application of knowledge and skills:

- A1.** Develop a lesson sequence that includes a range of learning activities.
- A2.** Design a sequence of lesson plans that incorporate the use of technology.
- A3.** Examine assessment techniques in mathematics with reference to contemporary research.
- A4.** Accurately assess student work samples, give appropriate feedback, and determine the next level of learning for that student.

Unit Content:

Topics to be covered

- Studies related to numeracy; number and algebra, measurement and geometry, statistics and probability; problem solving and mathematical modelling, mathematical thinking and reasoning.
- Engagement techniques in primary mathematics.
- Linking mathematics curriculum content to mathematical activities. Making links to previous mathematical knowledge.
- Designing learning activities and sequences in mathematics.
- Language of mathematics and mathematical language reading, writing, and speaking mathematics.
- Examining real world contexts for mathematics.
- Organising mathematics content into effective learning sequences.
- Development of ICT activities, including coding, that support the learning of mathematics.
- Effective assessment that guides learning and informs future learning.
- The use of formative and summative assessment in mathematics.

- Planning, programming, assessment and reporting and their interconnections in mathematics in the primary school setting.

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 will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams. 	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> • Creating a collegial environment • Showing self-awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative 	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving. 	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a 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"> • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities. 	Not applicable	Not applicable

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 will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life. 	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K2, K3, S3, S5, A3, A4	Analyse learning and assessment tasks, and student work, including a coding sample, regarding mathematics learning theory, education theory, policies, and curriculum.	Analysis of student work	40 - 60%
K1, K3, K4, S1, S2, S4, S6, A1, A2	Planning For Learning: This task requires students to plan sequenced mathematics lessons based on current curriculum and research. These plans will include a range of teaching and learning strategies, including the use of technology.	Lesson Planning	40 - 60%
S1	Hurdle Task: Maths Competency Test. Students are to achieve mastery (90% or higher) on this test.	Test	S/N

Adopted Reference Style:

APA ()

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

Fed Cite - [referencing tool](#)