

Course Outline (Higher Education)

Institute / School:	Institute of Education, Arts & Community
Course Title:	MATHEMATICS, NUMERACY AND LEARNER ENGAGEMENT 2
Course ID:	EDMAS6042
Credit Points:	15.00
Prerequisite(s):	(EDMAS6039)
Co-requisite(s):	Nil
Exclusion(s):	(EDFGC5714)
ASCED:	070103

Description of the Course:

This course is designed to engage students in critical readings on current research and practice in numeracy education, and practical learning strategies so they can implement effective student learning in different mathematical topics. There is an emphasis on students interrogating their understanding and honing their skills in facilitating children`s learning in a variety of sociocultural and educational contexts. Students use and apply learning technologies that cater for diverse learners, and mixed abilities. These activities are informed by current educational policy and curriculum, both locally and internationally. Pre-service teachers will develop skills in academic and personal communication, self-reflection, personal learning, delivering and responding to peer feedback.

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

Work Experience:

Not wholly work experience: Student is not undertaking work experience in industry or student is undertaking work experience in industry where learning and performance is directed by the provider.

Does Recognition of Prior Learning apply to this course? No

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	■	■	✓	■
Advanced	■	■	■	■	■	■

Learning Outcomes:

On successful completion of the course pre-service teachers will demonstrate their capacity to:

Knowledge:

- K1.** Explore theories about how children construe and learn mathematics.
- K2.** Examine a broad range of learning theories and apply these to the teaching of mathematics.
- K3.** Apply and integrate a range of technology devices in a range of mathematical situations.
- K4.** Examine the literacies (including vocabularies) and numeracies specific to Mathematics so that they can be used competently and explicitly taught.

Skills:

- S1.** Develop pedagogies such as cooperative learning, hands on learning and the use of thinking routines and how these relate to the teaching and learning of mathematics.
- S2.** Reflect on the use of patterns in the teaching and learning of mathematics.
- S3.** Develop mathematical competence through understanding the numerical system.
- S4.** Create lessons in line with current mathematics curriculum documents.
- S5.** Develop assessment tasks that will evaluate student learning and inform future teaching.

Application of knowledge and skills:

- A1.** Use assessment as the basis of future lesson plans that cater for students at specific curriculum levels.
- A2.** Research diversity in mathematics and demonstrate strategies that could be used for diverse learners.
- A3.** Develop classroom strategies to support children`s learning in mathematics and numeracy in line with local and Australian curriculum.

Course Content:

Topics to be covered

- Knowledge and understanding of the concepts related to number and numeracy; measurement and estimation, space and location, mathematical modelling, reasoning and strategies, mathematical ways of thinking, the nature of proof, and functions and graphs; Inclusion and the use of inclusive strategies in the primary mathematics classroom.
- How the high impact teaching strategies can be incorporated into the mathematics classroom.
- Know and understand the links between literacy and numeracy teaching strategies and their application to teaching
- Mathematics and explore how literature can be used to assist in the teaching of mathematics;
- Organise content into effective learning and teaching sequences with a focus on inclusion;
- Select and use resources for mathematics teaching and learning;
- Use curriculum, assessment and reporting knowledge to design learning sequences and lesson

plans in mathematics;

- Understand how students learn with reference to research and education theory, and the implications of this for teaching;
- Assessment strategies, including formative and summative approaches to assess student learning.
- Explore the early years numeracy interview process.
- Plan and reflect on strategies to differentiate teaching to cater for a full range of abilities, including diverse backgrounds;
- Implement teaching and learning strategies that incorporate the use of ICT into the mathematics curriculum;
- Use ICT safely, responsibly and ethically;
- Use reflection to further enhance understanding of how mathematics learning takes place.

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 course, and all must be directly assessed in each program.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		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: <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. 	K2, S2, A1, A2	AT2
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. <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 	A2	AT1

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
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 	K2, A1	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 	Not applicable	Not applicable
FEDTASK 5 sustainable and Ethical Mindset	<p>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:</p> <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. 	A3, S4	AT1

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, S4, S5, A1, A2, A3 APST: 1.2, 1.5, 2.5, 2.6	Research task: Research and develop a report and presentation on a topic related meeting the specific learning needs of students across the full range of abilities.	Research report and Presentation	40-60%
K1, K2, K3, K4, S1, S2, S3, S4, A1, A2, A3 APST: 1.2, 1.5, 2.1, 2.2, 2.3, 2.5, 3.2, 3.4, 5.1, 5.3	Teaching Activity: Assess student understandings in mathematics, by formative approaches, to then analyse and plan learning activities for students in line with current curriculum to cater for a range of abilities	Teaching Activity	40-60%

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
	LANTITE Literacy Test (external)	Hurdle	S/UN
	LANTITE Test Numeracy (external)	Hurdle	S/UN

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 program level. Although courses must undertake MiCS mapping, there is NO expectation that courses 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 program level reporting highlights how each program embraces the principals and practices associated with the Co-Operative Model. Evidence of program alignment with the MiCS, can be captured in the Program Modification Form.

MICS Mapping has been undertaken for this course 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		
1. Know students and how they learn		
1.2 Understand how students learn Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.	Yes	Intermediate
1.5 Differentiate teaching to meet the specific learning needs of students across the full range of abilities Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.	Yes	Intermediate
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	Intermediate
2.2 Content selection and organisation Organise content into an effective learning and teaching sequence.	Yes	Intermediate
2.3 Curriculum, assessment and reporting Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.	Yes	Intermediate
2.5 Literacy and numeracy strategies Know and understand literacy and numeracy teaching strategies and their application in teaching areas.	Yes	Intermediate
2.6 Information and Communication Technology (ICT) Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	Yes	Intermediate
Professional Practice		
3. Plan for and implement effective teaching and learning		
3.2 Plan, structure and sequence learning programs Plan lesson sequences using knowledge of student learning, content and effective teaching strategies.	Yes	Intermediate
3.4 Select and use resources Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.	Yes	Intermediate

4. Create and maintain supportive and safe learning environments

4.5 Use ICT safely, responsibly and ethically

Demonstrate an understanding of the relevant issues and the strategies available to support the safe, responsible and ethical use of ICT in learning and teaching.

Yes

Intermediate

5. Assess, provide feedback and report on student learning

5.1 Assess student learning

Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.

Yes

Intermediate

5.3 Make consistent and comparable judgements

Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning.

Yes

Intermediate