USC

Course Outline

Code: EDU209
Title: Teaching Mathematics in the Early Years

School: Education
Teaching Session: Semester 2
Year: 2020
Course Coordinator: Catherine Thiele Email: cthiele@usc.edu.au
Course Moderator: Dr Sharon Louth

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1 Description

You will develop an understanding of the Australian Curriculum: Mathematics (Prep to Year 3). You will explore current research in early learning and teaching of mathematics to enable you to conceptualise, plan and design learning, teaching and assessments. You will consider a range of strategies including play-based and inquiry learning as well as interpret student thinking and diagnose misconceptions to improve student learning. You will also explore the linkages with literacy, numeracy and ICT and develop your mathematical content knowledge.

1.2 Course Topics

- Current learning theories within a mathematical context, including play, constructivism and inquiry.
- The Australian Curriculum: Mathematics.
- The language of mathematics.
- Mathematical pedagogies, assessment and resources to meet the needs of all learners.
- Strategies for teaching and assessing students in acquisition of mathematical concepts relating to number, algebra, geometry, measurement, probability and statistics.
- Identifying student thinking and understanding and correcting mathematical misconceptions.
- Evaluating and improving student learning.
- Mathematical content knowledge for teaching.

2. What level is this course?

200 level Developing – Applying broad and/or deep knowledge and skills to new contexts. May require pre-requisites and introductory level knowledge/skills. Normally undertaken in the 2nd or 3rd year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

Specific Learning Outcomes On successful completion of this course, you should be able to:	**Assessment tasks** You will be assessed on the learning outcomes in task/s:	**Graduate Qualities or Professional Standards mapping** Completing these tasks successfully will contribute to:
Apply knowledge of the Australian Curriculum Mathematics content and substance.	Task 1, 2 & 3	Empowered Knowledgeable
Apply mathematical learning theory and developmentally appropriate pedagogy	Task 1, 2 & 3	Creative and Critical thinkers Empowered
Develop a repertoire of mathematical pedagogies, assessment and resources to meet the needs of a diverse range of early years learners	Task 1, 2 & 3	Sustainability Focussed
Plan and develop learning environments and learning episodes that reflect a sound understanding of mathematical concepts, literacy and ICTs	Task 2 & 3	Empowered Creative and Critical thinkers

5. Am I eligible to enrol in this course?

Refer to the USC Glossary of terms for definitions of "pre-requisites, co-requisites and anti-requisites".

5.1 Enrolment restrictions

Enrolled in ED304 or ED306 or ED303 or UU301 or XU301.

5.2 Pre-requisites

NA

5.3 Co-requisites

NA

5.4 Anti-requisites

EDU341

5.5 Specific assumed prior knowledge and skills (where applicable)

NA

6. How am I going to be assessed?

6.1 Grading scale

Standard – High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL)

6.2 Details of early feedback on progress

Early Feedback will occur during tutorials and lectures prior to the first assessment in a variety of forms such as: peer support, tutor modelling, examples to view, open discussions, etc.

6.3 Assessment tasks

Task No.	Assessment Product	Individual or Group	Weighting %	What is the duration / length?	When should I submit?	Where should I submit it?
1	Rationale Statement and Lesson Plan	Individual	30%	Rationale Statement (500 words) and lesson plan	Friday 5pm Week 4	Blackboard (Safe Assign)
2	Teaching Segment and Lesson Plan	Individual / Partners	30%	10 minute teaching segment and lesson plan	Weeks 7-9	In tutorial presentation. Upload plans to Blackboard (Safe Assign)
3	Exam	Individual	40%	90 minutes	Week 10	Online
			100%			

Assessment 1: Rationale Statement and Lesson Plan

Goal:	The goal of this task is to apply mathematical learning theory, developmentally appropriate pedagogy and knowledge of the Australian Curriculum: Mathematics to develop a rationale statement and lesson plan.
Product:	Rationale statement and lesson plan.
Format:	Rationale Statement (500 words) Your statement will apply your knowledge of mathematical learning theory and developmentally appropriate pedagogies by explaining your lesson plan structure and choices. You will describe your understandings underpinning your lesson plan choices. These ideas are to be supported by literature using APA6 referencing. Lesson Plan You will develop a written lesson plan using the template provided on Blackboard. The lesson plan is to develop a new mathematical concept for young learners in Prep, Year 1, Year 2, or Year 3. You will write a lesson that aligns with the Australian Curriculum using developmentally appropriate teaching and learning pedagogies. The lesson plan will indicate assessment opportunities and resources that will meet the needs of a diverse classroom. The lesson will be equivalent to 40 minutes of mathematics. It may be divided into mini lessons as appropriate to the age group. The template will require you to consider how you know that the students understand the lesson concepts. Note: Topics and year levels may be assigned or negotiated to allow for a diverse range of topics and year level representation.
Criteria:	• Apply knowledge of the Australian Curriculum: Mathematics content and substance. • Apply mathematical learning theory and developmentally appropriate pedagogy • Develop a repertoire of mathematical pedagogies, assessment and resources to meet the needs of a diverse range of early years learners • Written communication skills and academic literacies including English expression, grammar, spelling, punctuation, APA referencing conventions.

Assessment Task 2: Teaching Segment and Lesson Plan

Goal:	The goal of this task is to create and deliver a 10 minute teaching segment and provide a written lesson plan to demonstrate knowledge of the Australian Curriculum: Mathematics.
Product:	Teaching segment and lesson plan.
Format:	Lesson Plan You and your partner will create a written lesson plan using the template provided on Blackboard. The lesson plan will developmentally and sequentially build upon a mathematical concept for a year level (years 1-3). Like Task One, the lesson plan is to demonstrate developmentally appropriate pedagogy and understandings of mathematical learning theory. PLEASE NOTE: This lesson plan concept must be different to Task One and a different age group is suggested. Teaching segment You will individually teach one of the activities (from the co-planned lesson plan) to the tutorial for approximately 10 minutes. You will need to locate materials and resources related to the concept you plan to teach, model the teaching of the selected mathematical concept by incorporating suitable teaching pedagogy and mathematical language for an Early Years class (Yrs 1-3) and demonstrate good questioning and communication skills (verbal and non-verbal) while you are teaching. Note: Practice teaching as though the 'students' need to learn the concept and the new associated terminology. Do not assume we know. Teach us. Reflection At the end of your teaching segment you will personally reflect both positively and negatively on the effectiveness of your pedagogy, appropriateness of resources and the quality of your questions. This personal reflection is written after the teaching segment – it is not submitted.
Criteria:	• Apply knowledge of the Australian Curriculum: Mathematics content and substance. • Apply mathematical learning theory and developmentally appropriate pedagogy *(Explicit modelling of concepts and effective teaching strategies)* • Develop a repertoire of mathematical pedagogies, assessment and resources to meet the needs of a diverse range of early years learners *(appropriate and effective teaching resources and use of ICTs if applicable)* • Plan and develop learning environments and learning episodes that reflect a sound understanding of mathematical concepts, literacy and ICTs • Oral communication skills (verbal and non-verbal) -teaching presence and engagement with peers during teaching segment • Written communication skill and academic literacies including English expression, grammar, spelling and punctuation.

Assessment Task 3: Exam

Goal:	The goal of this task is to synthesise knowledge of mathematical learning theory, curriculum content, pedagogy and resources.
Product:	Exam (90 mins)
Format:	Part A Multiple choice and short answer questions based on the key topics from lecture course material, readings, tutorial activities and Australian Curriculum content. Part B You will be provided with an Early Years primary classroom scenario which you will analyse and reflect upon in terms of; - Alignment with the content and proficiency strands of the Australian Curriculum: Mathematics;

	- Identify Mathematical understandings of the students (assessment); - Identify and evaluate the pedagogy; - Identify and evaluate the learning happening in the classroom; - Explain how you would change the teaching and learning in the scenario so that it is effective for all learners.
Criteria:	• Apply knowledge of the Australian Curriculum: Mathematics content and substance. • Apply mathematical learning theory and developmentally appropriate pedagogy • Develop a repertoire of mathematical pedagogies, assessment and resources to meet the needs of a diverse range of early years learners • Plan and develop learning environments and learning episodes that reflect a sound understanding of mathematical concepts, literacy and ICTs

7. Directed study hours

A 12 unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. A blended learning approach is used to deliver this course, including a mix of synchronous and asynchronous materials and activities accessed through Blackboard. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

This course will be delivered via technology-enabled learning and teaching. All lectures will remain in this mode for Semester 2 2020. When government guidelines allow, students that elected on-campus study via the class selection process will be advised when on campus tutorials and practical sessions will resume.

Week # / Module #	**What key concepts/content will I learn?**
1	How children learn mathematics
2	Mathematics and Numeracy; Early Number
3	Mathematics language
4	Planning for and assessing mathematics learning
5	Early number and computational thinking
6	Patterning and algebraic thinking
7	Measurement and Geometry
8	Probability and Statistics
9	Developing an identity as a mathematician
10	Exam

8. What resources do I need to undertake this course?

Please note that course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site. Please log in as soon as possible.

8.1 Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below as they are required:

Author	**Year**	**Title**	**Publisher**
Jorgensen, R., Dole, S., & Larkin, K.	2019	Teaching Mathematics in Primary School (3rd ed.)	Allen & Unwin

**this text is retained for EDU400*

8.2 Specific requirements

It is the responsibility of the student to provide resources for the teaching segment

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low.
It is your responsibility as a student to review course material, search online, discuss with lecturers and peers, and understand the health and safety risks associated with your specific course of study. It is also your responsibility to familiarise yourself with the University's general health and safety principles by reviewing the online Health Safety and Wellbeing training module for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1 Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2 Assessment: Additional requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

a) The final mark is in the percentage range 47% to 49.4%
b) The course is graded using the Standard Grading scale
c) You have not failed an assessment task in the course due to academic misconduct

10.3 Assessment: Submission penalties

Late submission of assessment tasks will be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day
- 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task.

Weekdays and weekends are included in the calculation of days late.
To request an extension, you must contact your Course Coordinator and supply the required documentation to negotiate an outcome.

10.4 Study help

In the first instance, you should contact your tutor, then the Course Coordinator. Additional assistance is provided to all students through Academic Skills Advisers. To book an appointment or find a drop-in session go to Student Hub.

Contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au

10.5 Wellbeing Services

Student Wellbeing Support Staff are available to assist on a wide range of personal, academic, social and psychological matters to foster positive mental health and wellbeing for your success. Student Wellbeing is comprised of professionally qualified staff in counselling, health and disability Services.

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, mental health issue, learning disorder, injury or illness, or you are a primary carer for someone with a disability, AccessAbility Services can provide assistance, advocacy and reasonable academic adjustments.

To book an appointment with either service go to Student Hub, email studentwellbeing@usc.edu.au or accessability@usc.edu.au or call 07 5430 1226

10.6 Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website:
http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.7 General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC Moreton Bay** - – Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **USC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast -** Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture -** Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au

10.8 School specific information

Assessment Task	Australian Professional Standards for Teachers (Graduate)
Task 1: Rationale Statement and Lesson Plan	Introductory: 2.1, 3.3, 3.4
Task 2: Teaching Segment and Lesson Plan	Introductory: 2.1, 2.2, 2.3, 2.5, 3.3, 3.4
Task 3: Exam	Introductory: 2.1, 2.3, 2.5, 3.6, 4.2, 5.1, 5.4