

School

School

Contents

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1. LOCATION

Faculty of Arts, Design & Architecture
School of Education
EDST6725 Mathematics Method 1 (6 units of credit)
Term 1 2021

2. STAFF CONTACT DETAILS

Lecturer: Yvette Semler
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Availability: Please email to arrange an appointment

Tutor: Janet Hunter
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Availability: Please email to arrange an appointment

3. COURSE DETAILS

Course Name Mathematics Method 1

STUDENT LEARNING OUTCOMES

2.4.1	Demonstrate broad knowledge of, understanding of and respect for Aboriginal and Torres Strait Islander people to promote reconciliation between Indigenous and non-Indigenous Australians	1,3
2.5.1	Know and understand literacy and numeracy teaching strategies and their application in teaching areas.	1,3
2.6.1	Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	1, 2, 3
3.1.1	Set learning goals that	

4. RATIONALE FOR THE INCLUSION OF CONTENT AND TEACHING APPROACH

This subject aims to develop in each student the ability to effectively teach Mathematics to secondary school students with an emphasis on the Australian Curriculum for NSW Mathematics. During the course, students will develop their knowledge of New South Wales syllabus documents. Lectures, tutorials and assignments will cover a variety of approaches to teaching and learning in the Mathematics classroom. Emphasis will be given to the relationship between Mathematics, literacy and numeracy and the role and value of Mathematics in the curriculum and the community.

Student-centered activities will form the basis of the course examining the central ideas and common misconceptions. These activities will draw on the prior knowledge of the students and will allow them to engage in relevant and challenging experiences that mirror those they will be expected to design for the secondary students they will later teach.

5. TEACHING STRATEGIES

- Explicit teaching, including lectures, to demonstrate an understanding of students' different approaches to learning and the use of a range of teaching strategies to foster interest and support learning.
- Small group cooperative learning to understand the importance of teamwork in an educational context and to demonstrate the use of group structures as appropriate to address teaching and learning goals.
- Extensive opportunities for whole group and small group dialogue and discussion, allowing students the opportunity to demonstrate their capacity to communicate and liaise with the diverse members of an education community, and to demonstrate their knowledge and understanding of method content and language.
- Structured occasions for reflection on learning to allow students to reflect critically on and improve teaching practice and strategies.
- Online learning from readings on the Moodle website.
- Peer teaching in a simulated classroom setting.

These activities will occur in a classroom climate that is supportive and inclusive of all learners.

6. COURSE CONTENT AND STRUCTURE

Module	Lecture	Tutorial
1	<p>Introduction to the Course NSW Syllabus for the Australian Curriculum, Mathematics Syllabus K-10 how students learn Mathematics & Classroom Engagement What are the Proficiencies? Working Mathematically?</p>	<p>Physical, social and intellectual development of students and how this affects their engagement in learning Stage Progressions & Transitions between activities Questioning Techniques – pre/post testing Planning & classroom talk moves</p>
2	<p>Teaching strategies Literacy and Numeracy in the Mathematics Classroom How culture, cultural</p>	

5	<p>Organisation of classroom activities Individual, pair and group work Self and peer assessment</p> <p>Number & Algebra: Introducing Algebra</p>	<p>Effective transitions between activities tracking progress e.g. student logs, exit tickets, <i>Microteaching</i></p>
6	<p>Teaching strategies Hands-on Mathematics Measurement & Geometry: GeoGebra</p>	<p>Workshop to explore and evaluate the suitability of teaching strategies/resources to meet learning goals and outcomes <i>Microteaching</i></p>
7 Online	<p>Unit planning Sequencing subject content across lessons within a unit of work Measurement & Geometry: Area & Volume</p> <p>*Week 7 is Good Friday. Class will be online.</p>	<p>Content selection and scope of content for effective lesson sequences for one stage <i>Using Scootle and Program Builder</i> Prepare your unit plan for peer feedback next week.</p>
Week 8 Method Break		
9 F2F	<p>Unit planning Including formative assessment Number & Algebra: Graphs</p> <p>Using ICT Graphic software DESMOS, Geogebra</p>	<p>Importance of timely and on-going feedback Peer Feedback on unit plan Dynamic Geometry Practice <i>Microteaching</i></p>
10	<p>Unit planning The balancing act: teacher v. student directed learning Measurement & Geometry: Trigonometry</p>	<p>Organising for independent learning <i>Microteaching</i></p>
11	<p>What to expect on practicum? Bringing it all together Student engagement</p>	<p>Becoming a reflective teacher through the feedback cycle MyExperience on-line course evaluation <i>Microteaching</i></p>

7. RESOURCES

Required Texts

Cavanagh, M., & Prescott, A. (2014). *Your Professional experience handbook*

Professional Associations

www.mansw.nsw.edu.au

www.aamt.com.au

www.merga.net.au/

www.science.org.au/education/academy-education

Additional Resources

<https://www.youcubed.org/>

<https://www.desmos.com/>

<https://nrich.maths.org/adventsecondary>

<https://www.geogebra.org/>

Assessment Details

Assessment Task 1: Designing a Lesson (c. 2000 words, 40%)

Plan and design one 60-minute lesson for a mixed-ability Stage 4 class. The lesson plan must follow a standard SED format and be presented using the template provided.

Plan your lesson for a class in a comprehensive high school which would typically include EAL/D students, Indigenous students and students with various religious and cultural backgrounds. Some students may have low levels of literacy. Differentiation to cater for some students is therefore required. Appropriate differentiation strategies are scaffolding, group work and/or an alternative task or mode of presentation.

1. Write a rationale for your lesson plan. Your rationale should address the questions: What do I want the students to learn? Why is it important? What strategies will I use? What assessment for learning strategies will I use to monitor progress?
2. Prepare the lesson plan to demonstrate how you will use appropriate structure, activities, strategies and formative assessment to develop understanding of the material.

Make sure you:

choose a lesson from the Stage 4 topics of Fractions, or Decimals or Percentages.

support your rationale using references indicating your professional reading

choose appropriate/ AMCID 5-BDC q0.000008866 0 595.02 841.98 reW*nBT/F1 10.02 Tf1 0 deapp

HURDLE REQUIREMENT

ASSESSMENT 3 - MICROTEACHING

Microteaching is the planning, presentation and evaluation of a lesson over a shortened period of time (a 10-minute mini-lesson). It is a critical aspect of method as it provides students with the opportunity to demonstrate key competencies that must be achieved before student teachers are permitted to undertake Professional Experience 1, at the same time observing other student teachers and engaging in peer review. It is recommended that students read widely on effective classroom strategies and practise aspects of their mini-lesson with a small group of peers prior to assessment.

The assessment process will consist of the following two components:

1. A detailed lesson plan using the prescribed template, including a statement of expected learning outcomes
2. A 10 minute mini-lesson

Initial Lesson Plan : All students must submit to the method lecturer their proposed lesson plan at least one week prior to the presentation. If you are unsure of any aspect, please discuss your plan with your lecturer after class in the previous week.

Microteaching: This will be assessed according to the attached criteria, and will be graded as Satisfactory or Unsatisfactory. Any student whose first microteaching episode is judged as unsatisfactory will be given a further (one only) opportunity to gain a satisfactory grade.

NOTE: If a student is assessed as unsatisfactory in microteaching

Short Presentation to your class (not assessed)

Student 'Short Presentations' will occur in weeks 2, 3 and 4. Each student will be required to either present a solution/explanation to a mathematical problem or present a short lesson about a mathematical concept. The presentations are not to be lectures but should be seen as a segment from a mathematics lesson, pitched at a Stage 4 or 5 student. Your peers will play the role of the class. These presentations will not form part of your assessment for this course but will give you an opportunity to practise skills such as eye contact, voice production and communication for your Microteaching. Your lecturer and class will give you feedback about your level of skill.

- a) Presentation of a

UNSW SCHOOL OF EDUCATION
 FEEDBACK SHEET
 EDST6725 MATHEMATICS METHOD 1

Student Name:

Student No.:

Assessment Task: **Designing a lesson**

Specific criteria	(-) —————> (+)					
Understanding of the question or issue and the key concepts involved <ul style="list-style-type: none"> • Understanding of the task and its relationship to relevant areas of theory, research and practice. • Rationale linked to outcomes in the syllabus. 	<table border="1" style="width: 100%; height: 100px;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> </table>					

Depth of analysis and/or critique in response to the task

- Ability to plan and assess for effective learning by using knowledge of the NSW syllabus documents or other curriculum requirements of the education act.
- Reasons for the choice of teaching and learning strategies effectively explained.
- Demonstration of knowledge, respect and understanding of the social, ethnic, cultural and religious backgrounds of students and how these factors may affect learning.
- Demonstrates knowledge of resources that will engage and extend all students.
- Sharing of helpful resources with your colleagues either via Moodle or in hardcopy.
- Clear statement of syllabus outcomes.
- Lesson goal(s) clearly linked to syllabus outcomes and chosen strategies
- Effective use of student group structures to address teachnBT178 reW*nBT/F5 10.9€

