



The University of Southern Queensland

Course specification

Description: Mathematics Teaching						
Subject	Cat-nbr	Class	Term	Mode	Units	Campus
ECE	4020	55266	2, 2006	ONC	1.00	Toowoomba

Academic group:	FOEDU
Academic org:	FOE004
Student contribution band:	National Priority Teaching
ASCED code:	070103

STAFFING

Examiner: Noel Geoghegan
Moderator: Leisa Holzheimer

RATIONALE

Teaching mathematics to young children is a complex endeavour. For prospective teachers of early years school mathematics to feel confident in their roles, they need to experience quality mathematics teaching, to be mathematically competent, to know students as learners of mathematics and to know how to implement appropriate mathematical pedagogy. The development of positive attitudes and a broad knowledge base will assist in positioning teachers as effective mathematics educators when working in the early years of schooling.

SYNOPSIS

The course aims to consolidate knowledge, skills and understanding of the specialised mathematical concepts, processes and affects of the early years of primary school mathematics curriculum together with a focus on the methodology used in instruction. This will assist the development of competent and confident teachers of mathematics when working within the early years of school. **IMPORTANT NOTE:** Working with Children: State law in Queensland requires that all adults (including university students, pre-service educators, trainers, vocational teachers, industry educators) working with children under the age of 18, in the State of Queensland*, obtain approval before commencing such work. Many education courses include a practical component (professional experience, project work, research, assessment etc.) that may require engagement with children under the age of 18. It is your responsibility to ensure that you possess a current suitability card (Blue Card) before commencing any practical components of this course. **DO NOT PARTICIPATE IN ANY PRACTICAL EXPERIENCE WITH CHILDREN UNDER 18 UNLESS YOU POSSESS A CURRENT 'BLUE CARD'**. For further information:

<http://www.childcomm.qld.gov.au/employment/bluecard/informationSheets.html> *If you are undertaking practical experience outside the State of Queensland, Australia you should check local requirements.

OBJECTIVES

On completion of this course students will be able to:

1. demonstrate knowledge of the concepts and processes associated with numeration, operations, estimation, measurement, problem solving, space, chance and data and graphs
2. describe and apply appropriate instructional strategies in relation to the content areas listed in 1 above
3. plan and evaluate lessons across the early years of primary mathematics curriculum
4. justify and describe how to integrate the use of technology in mathematics lessons
5. diagnose and remediate errors in mathematical thinking
6. describe and incorporate current mathematical assessment approaches
7. use and evaluate, mathematical materials and resources
8. demonstrate an awareness of selected mathematics education issues in the early years of primary school
9. work confidently with current mathematics syllabus document.

TOPICS

Description	Weighting (%)
1. The mathematics of working with Number and Operations	30.00
2. Models and theories of mathematics curriculum planning	15.00
3. Current, innovative curriculum frameworks and reforms	10.00
4. Planning lessons using problem-centred learning and the use of appropriate resources including Mathematics syllabus documents	10.00
5. Knowledge of mathematics pedagogy: appropriate teaching strategies and contextualising learning	5.00
6. Space, Measurement, Chance and Data	20.00
7. Technology in the early primary school mathematics classroom	5.00
8. Equity, diversity and positive attitudinal issues in the mathematics classroom	5.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

Book of readings for ECE4020 Mathematics Teaching

Sperry Smith, Susan 2005, *Early childhood mathematics*, 3rd edn, Allyn & Bacon,

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Bennett, A & Nelson, T 2004, *Mathematics for elementary teachers: a conceptual approach*, 6th edn, McGraw-Hill, Boston.

Booker, G 2004, *Teaching primary mathematics*, 3rd edn, Pearson Longman, Frenchs Forest, NSW.

Carnellor, Y 2004, *Encouraging mathematical success for children with learning difficulties*, Social Science Press, Southbank, Vic.

Clements, DH, Sarama, J & DiBiase, A 2003, *Engaging young children in mathematics: standards for early childhood mathematics education*, Lawrence, Erlbaum, Mahwah, NJ.

Kamii, C 1994, *Young children continue to reinvent arithmetic - 3rd grade: implications of Piaget's theory*, Teachers College Press, New York.

National Council of Teachers of Mathematics 2000, *Principles and standards for school mathematics*, NCTM, Reston, VA.

Wright, RJ, Martland, J & Stafford, AK 2000, *Early numeracy: assessment for teaching and intervention*, Paul Chapman Publishing, London.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	30.00
Directed Study	50.00
Private Study	85.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
PRESENTATION	50.00	50.00	25 Jul 2006 (see note 1)
ESSAY 2	50.00	50.00	27 Oct 2007
EXAM	0.00	0.00	END S2

NOTES

1. The Examiner will advise the due date for this assessment item.

IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:

To satisfactorily complete an individual assessment item a student must achieve at least 50% of the marks.

- 3 Penalties for late submission of required work:
If students submit assignments after the due date without prior approval of the examiner then a penalty of 10% of the total marks available for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade a student must submit all of the assessment items and must achieve at least 50% of the total weighted marks available for the course.
- 5 Method used to combine assessment results to attain final grade:
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.
- 6 Examination information:
Candidates are allowed to bring only writing and drawing instruments into the Closed examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:
Any Deferred or Supplementary examinations for this course will be held at the examiner's discretion and the examiner will advise students involved in writing of the date, time and location of any such examination.
- 8 University Regulations:
Any Deferred or Supplementary examinations for this course will be held at the examiner's discretion and the examiner will advise students involved in writing of the date, time and location of any such examination. Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

ASSESSMENT NOTES

- 1 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the examiner.
- 2 Students must retain a copy of each item submitted for assessment. This must be produced within twenty-four (24) hours of receipt of request being made by the examiner. The student must retain this copy until the grade for this course has been finalised.
- 3 In accordance with the University's assignment extension policy (Regulation 5.6.1), the examiner may grant an extension of the due date of an assignment in extenuating circumstances.
- 4 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media. The Faculty will NOT accept submission of assignments by facsimile. Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.
- 5 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next working day. Students are to note on the assignment cover the date of the public holiday for the examiner's convenience.

- 6 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.
- 7 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination); IDM (Incomplete - Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).
- 8 When there is more than one marker for a single item of assessment, the distributed patterns and means for the different markers will be compared and marks adjusted if necessary.
- 9 Marking criteria are provided in course material as mark sheets/guides or as part of assignment specifications.
- 10 All assessment items must be submitted with a pass overall gained.
- 11 Summative assessment items will receive a numerical score. Any ungraded assessment requirement will receive a Pass, Fail or Incomplete.

OTHER REQUIREMENTS

- 1 Students will require access to e-mail and Internet access to USQConnect for this course.
 - 2 Students are to use a recognised referencing system as specified by the examiner.
 - 3 **IMPORTANT NOTE: Working with Children: State law in Queensland requires that all adults (including university students, pre-service educators, trainers, vocational teachers, industry educators) working with children under the age of 18, in the State of Queensland*, obtain approval before commencing such work. Many education courses include a practical component (professional experience, project work, research, assessment etc.) that may require engagement with children under the age of 18. It is your responsibility to ensure that you possess a current suitability card (Blue Card) before commencing any practical components of this course. DO NOT PARTICIPATE IN ANY PRACTICAL EXPERIENCE WITH CHILDREN UNDER 18 UNLESS YOU POSSESS A CURRENT 'BLUE CARD'. For further information:**
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