



The University of Southern Queensland

## Course specification

### Description: Emerging Numeracy 0 to 6 Years

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
ECE	2008	30643	1, 2004	EXT	1.00	TWMBBA

<b>Academic group:</b>	FOEDU
<b>Academic org:</b>	FOE004
<b>Student contribution band:</b>	1
<b>ASCED code:</b>	070101

### STAFFING

Examiner: Noel Geoghegan

Moderator: Deborah Geoghegan

### RATIONALE

From infancy, children are actively engaged in developing concepts which allow the organisation and categorisation of information. Through interaction with the environment during everyday experiences, children construct and test their concepts which include mathematical thinking. It is important that adults (including parents and caregivers) who are influential in the early years of a child's life have an understanding of how young children develop mathematical knowledge so that appropriate experiences may be provided. Additionally, an awareness of the development of mathematical language, fundamental mathematical concepts and skills, and the sequence of the discipline knowledge of mathematics is necessary for teachers to plan effective learning opportunities for children.

### SYNOPSIS

This course examines the development of mathematical concepts and skills in young children. Emphasis is given to the types of learning experiences which encourage the young child's exploration and development of the fundamental concepts, attitudes, and skills involved in emerging numeracy.

### OBJECTIVES

On successful completion of this course students will be able to:

- demonstrate an understanding of the teaching and learning theories associated with mathematical development in young children;
- apply such theories to the development of appropriate learning and assessment activities;
- explain the role of language in teaching and learning mathematics;
- utilise an appropriate mathematical language for teaching and learning mathematics;

- describe a range of learning environments and materials for young children which enhance mathematical learning;
- explain the importance of play in mathematical learning;
- describe mathematical learning opportunities which may be provided through structured and unstructured preschool activities;
- critically evaluate various mathematical materials to assess their usefulness;
- identify the mathematical concepts, skills and attitudes which young children usually develop from birth to eight years;
- describe problem-solving applications for young children which foster their mathematical learning;
- identify the number skills developed by young children during the preoperational period;
- list ways in which parents may encourage mathematical learning in young children at home.

## TOPICS

Description	Weighting (%)
1. The development of math concepts	15.00
2. The role of language in teaching and learning methods	15.00
3. The role of materials in developing mathematics thinking	10.00
4. Fundamental mathematical concepts, attitudes and skills	10.00
5. Applications of fundamental concepts and skills	10.00
6. Mathematical learning through play	10.00
7. Higher-level activities and concepts	10.00
8. Young children and problem solving	15.00
9. Parents and maths in the home	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).

Charlesworth, R 2000, *Experiences in Math for Young Children*, Delmar, New York.

## 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.

Baratta-Lorton, M 1979, *Workjobs II: Number Activities for Early Childhood*, Addison-Wesley Publishing Co, Menlo Park, CA.

Bickmore-Brand, J (ed) 1990, *Language in Mathematics*, Australian Reading Association, Carlton South, Vic.

Mannigel, D 1998, *Young Children as Mathematicians*, 2nd edn, Social Science Press, Katoomba, NSW.

Moomaw, S & Hieronymus, B 1995, *More Than Counting: Whole Math Activities for Preschool and Kindergarten*, Redleaf, St Paul.

Payne, JN (ed) 1990, *Mathematics for the Young Child*, National Council of Teachers of Mathematics, Reston, VA.

Perry, B & Conroy, J 1994, *Early Childhood and Primary Mathematics: A Participative Text for Teachers*, Harcourt Brace, Sydney, NSW.

Skinner, P 1990, *What's Your Problem?: Posing and Solving Mathematical Problems in Junior Classes*, Thomas Nelson Australia, South Melbourne, Vic.

Sperry-Smith, S 2001, *Early Childhood Mathematics*, 2nd edn, Allyn & Bacon, Boston.

Tertini, J 1995, *Mathematics for the Very Young: A Resource Book*, Martin Educational, St Leonards, NSW.

Tertini, J 1994, *Maths Games to Make and Play: A Companion to Mathematics for the Very Young*, Martin Educational, Cammeray, NSW.

Thyer, D & Maggs, J 1991, *Teaching Mathematics to Young Children*, 3rd edn, Cassell Educational Limited, London.

Welchman-Tischler, R 1992, *How to use Children's Literature to Teach Mathematics*, The National Council of Teachers of Math, Reston, VA.

## STUDENT WORKLOAD REQUIREMENTS:

ACTIVITY	HOURS
Assessment	45.00
Directed Study	80.00
Private Study	40.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
DESIGN & EVAL MATH EQUIP	40.00	40.00	16 Apr 2004
PERSPECTIVES MATHS PROGRAM	60.00	60.00	04 Jun 2004

## **IMPORTANT ASSESSMENT INFORMATION**

- 1 Attendance requirements:
  - (a) There are no attendance requirements for this course. However, it is the students' responsibility 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:
  - (a) To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assessment item.
- 3 Penalties for late submission of required work:

If assignments are submitted after the due date without an approved extension of time, University penalties may be applied.
- 4 Requirements for student to be awarded a passing grade in the course:
  - (a) To be assured of a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by satisfactorily completing all summative assessment items (the examination and assignments).
- 5 Method used to combine assessment results to attain final grade:
  - (a) The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.
- 6 Examination information:
  - (e) There is no examination in this course.
- 7 Examination period when Deferred/Supplementary examinations will be held:

There is no examination in this course.
- 8 University Regulations:

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 (a) 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. (b) If requested, students will be required to provide a copy of assignments submitted for assessment purposes. Such copies should be despatched to USQ within 24 hours of receipt of a request being made. (c) The examiner may grant an extension of the due date of an assignment in extenuating circumstances. (d) The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media. (e) The Faculty will NOT accept submission of assignments by facsimile.

## **OTHER REQUIREMENTS**

- 1 Students will require some visits to centres (or other contact with Early Childhood settings) to complete the assignments.
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