



The University of Southern Queensland

## Course Specification

### Description: The Emergent Numeracy of Young Children

Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
ECE	2016	28178	3, 2003	EXT	1.00	TWMBBA

<b>Academic Group:</b>	FOEDU
<b>Academic Org:</b>	FOE004
<b>HECS 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 children from birth to eight years. 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 the teaching and learning of mathematics
- Utilise appropriate mathematical language for teaching and learning mathematics

- Describe and prepare 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 activities
- Critically evaluate various materials to assess their usefulness and relevance in mathematical experiences
- Identify the fundamental mathematical concepts, skills and attitudes which develop from birth to eight years
- Explain higher-level mathematical concepts which children may develop in early childhood
- Describe problem solving applications for young children which foster their mathematical learning
- Identify number skills developed by young children
- Employ ways to encourage parents in developing mathematical thinking in young children.

## TOPICS

Description	Weighting (%)
1. The development of math concepts	20.00
2. The role of language in teaching and learning	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	10.00
9. Parents and maths in the home	5.00

### **TEXT and MATERIALS required to be PURCHASED or ACCESSED:**

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at <http://bookshop.usq.edu.au> by entering the author or title of the text.

Charlesworth, R. 2000, *Experiences in Math for Young Children*, 4th edition, Delmar/Thomson Learning, 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.

Australian Early Childhood Association. 1990, , *Australian Journal of Early Childhood*, Vol 15, no.1.

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

Baratta-Lorton, M. 1995, *Mathematics Their Way*, Addison Wesley, Menlo Park, CA.

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

Bredenkamp, S. & Rosegrant, T. (eds.). 1995, *Reaching Potentials: Transforming Early Childhood Curriculum and Assessment (Vol 2)*, National Assoc for the Education of Young Children, Washington DC.

Charlesworth, R. & Radeloff, D.J. 1991, *Experiences in Math for Young Children*, 2nd edition, Delmar Publishers Inc, Albany, NY.

Elliott, A. 1990, Computer-based mathematical experiences in an early intervention program, *Australian Journal of Early Childhood*, Vol 15, no.3, pp37-45.

Fatouros, C., Downes, T. & Blackwell, S. 1994, *In Control: Young Children Learning with Computers*, Social Science Press, Wentworth Falls, NSW.

Fleer, M. 1989, *Jig Saw Puzzles*, Australian Early Childhood Association, Watson ACT.

Fleer, M. (ed.). 1996, *Play Through the Profiles: Profiles Through Play*, Australian Early Childhood Association, Watson, ACT.

Fry, I. 1992, *Rediscovering Unit Blocks*, Australian Early Childhood Association Inc, Watson, ACT.

Hawthorne, W. 1992, *Young Children and Mathematics*, Australian Early Childhood Association Inc,

Labinowicz (ed.). 1985, *Learning from Children: New Beginnings for Teaching Numerical Thinking*, Addison-Wesley Publishing Company Inc, Menlo Park, CA.

Mannigel, D. 1998, *Young Children as Mathematicians. Theory and Practice for Teaching Mathematics*, 2nd edition, Social Science Press, Katoomba, NSW.

Martin, R. & Wilkinson, L. 1990, *The Language of Mathematics: A Teacher Resource Book*, 2nd edition, Martin International,

Morrow, J. 1989, *Maths is Childsplay*, Longman Group UK Ltd, Essex.

Payne, J.N. 1990, *Mathematics for the Young Child*, The National Council of Teachers of Math's Inc, Reston, VA.

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

Phillips, J. L. 1981, *Piaget's Theory: A Primer*, W.H. Freeman and Company, San Francisco.

- Richardson, K. 1997, *Math Time: The Learning Environment*, Educational Enrichment, Norman, OK.
- Skinner, P. 1990, *What's Your Problem?: Posing and Solving Mathematical Problems in Junior Classes*, Thomas Nelson Australia, South Melbourne, Vic.
- Tertini, J. 1995, *Mathematics for the Very Young: A Resource Book*, Martin Education, St Leonards, NSW.
- Tertini, J. 1989, *Maths Games To Make and Play*, Martin Education, Cammeray, NSW.
- Thyer, D. & Maggs, J. 1991, *Teaching Mathematics to Young Children*, 3rd edition, Cassell Educational Limited, London.
- Welchman-Tischler, R. 1992, *How to use Children's Literature to Teach Mathematics*, The National Council of Teacher of Mathematics, Reston, VA.
- Wheatley, G.H. & Reynolds, A.M. 1999, *Coming to Know Number: A Mathematics Activity Resource for Elementary School Teachers*, Mathematics Learning, Tallahassee, FL.
- Yelland, N., Butler, D. & Diezmann, C. 1999, *Early Mathematical Explorations*, Pearson, Sydney.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	45
Directed Study	80
Private Study	40

## ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
EVALUATE MATH EQUIPMENT	40.00	40.00	Y	09 Jan 2004
DESIGN NUMERACY PROGRAM	60.00	60.00	Y	13 Feb 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/SECARIAT/calendar/Part5/> or in the printed version of 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. 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.