



The University of Southern Queensland

Course Specification

Description: Exploring Science & Technology in Early Childh'd

| Subject | Cat-Nbr | Class | Term | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|--------|
| ECE | 2017 | 25210 | 2, 2003 | EXT | 1.00 | TWMBBA |

| | |
|------------------------|--------|
| Academic Group: | FOEDU |
| Academic Org: | FOE004 |
| HECS Band: | 1 |
| ASCED Code: | 070101 |

STAFFING

Examiner: Lyn Bower

Moderator: Noel Geoghegan

SYNOPSIS

This course will examine the importance of developing children's creativity, curiosity, problem solving skills and sense of wonder and appreciation of the environment, in the exploration of science and technology. The course will focus on different approaches to teaching science and the development of positive attitudes for life long learning while taking into account children's cultural and diverse backgrounds. It aims to develop student's creativity, problem solving and analytical skills and their passion for science and technology.

OBJECTIVES

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

- demonstrate creative and problem-solving skills in their approach to science and technology;
- discuss the value of hands-on experiences for children in science activities;
- explain a number of approaches to teaching science;
- demonstrate how to listen effectively and respond to children's questions;
- demonstrate essential questioning techniques to further extend children's knowledge of science and technology;
- select, organise and present suitable materials for science experiences for young children;
- demonstrate the ability to develop children's appreciation of the natural environment;
- demonstrate some knowledge of science content and an ability to effectively access such knowledge through a variety of sources including web-based materials;
- develop an enthusiastic scientific attitude and an understanding of developing positive attitudes in young children;
- analyse curriculum documents and appropriate assessment methods;

- discuss the importance and impact of culture, values and diversity.

TOPICS

| Description | Weighting (%) |
|--|---------------|
| 1. Learning and teaching styles | 5.00 |
| 2. Creative problem solving | 15.00 |
| 3. Listening and responding to young children's questions and effective questioning | 10.00 |
| 4. Approaches to teaching science in ECE | 15.00 |
| 5. Environmental science in early childhood - teaching appreciation and developing a sense of wonder | 10.00 |
| 6. Technology in early childhood | 15.00 |
| 7. Cultural and diverse backgrounds | 5.00 |
| 8. Using web-based materials | 10.00 |
| 9. Curriculum documents and other resources | 5.00 |
| 10. Using resources - community and parents | 10.00 |

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.

1998, , *Every Child (Special Edition - Environment Australia) Summer*, Vol 4, no.4.

Benson, C. 1999, *Teaching Science and Design and Technology in the Early Years*, David Fulton, London.

Bentley, D. & Watts, M. 1994, *Primary Science and Technology*, Open University Press, Buckingham PA.

Bittinger, G. 1993, *1.2.3 Science: Science Activities for Working with Young Children*, Warren Publishing, Washington.

Bond, R. 1993, *Kitchen Science*, Ashton Scholastic, Sydney.

Chaille, C. 1997, *The Young Child as Scientist: A Constructivist Approach to Early Childhood Science Education*, 2nd edition, Longman, New York.

Christianson, C. 1995, *Magnets, Early Childhood*, Hawker Brownlo, Highett VIC.

Cliatt, M. & Shaw, J. 1992, *Helping Children Explore Science: A Source Book for Teachers*, Macmillan Publishing Company, New York.

De Vries, R. et al 2002, *Developing Constructivist Early Childhood Curriculum: Practical Principles and Activities*, Teachers College Press, New York.

- Elliott, S. & Emmett, S. 1991, *Snails Live in Houses Too: Environmental Education for the Early Years*, Horwitz Grahame Pty Ltd, Cammeray.
- Falk, J.H. & Donovan, E. 2001, *Free-choice Science Education: How We Learn Science Outside of School*, Teachers College Press, New York.
- Feely, J. 1994, *Take Home Science: Independent Activities for Science and Technology*, Eleanor Curtain Publishing, Armadale.
- Files, B.F. & Horne, V.V. 1998, *Science, Mathematics and eEchnology Preschool/Early Childhood*, American Assoc for the Advancement of Science, Washington DC.
- Fleer, M. 2001, *I Want to Know...?: Learning About Science*, Australian Early Childhood Association, Watson ACT.
- Fleer, M. & Hardy, T. 2001, *Science for Children: Developing a Personal Approach to Teaching*, 2nd edition, Prentice Hall, Sydney.
- Friedl, A.E. 1995, *Teaching Science to Children: An Integrated Approach*, McGraw-Hill, NY.
- Frost, J 1997, *Creativity in Primary Science*, Open University Press, Buckingham.
- Goldberg, L. 1997, *Teaching Science to Children*, Dover Publications Inc, New York.
- Harlan, J. & Rivkin, M. 2000, *Science Experiences for the Early Childhood Years: An Integrated Approach*, 7th edition, Prentice Hall, USA.
- Haugland, S.W. 1997, *Young Children and Technology: A World of Discovery*, Allyn & Bacon, Boston.
- Hooper, D. 1999, *Integrating Technology into the Science Curriculum*, Hawker Brownlow Education, Australia.
- Johnston, J. 1999, *Enriching Early Scientific Learning*, Open University Press, Buckingham.
- Koch, J. 1999, *Science Stories: Teachers and Children as Science Learners*, Houghton Mifflin Company, Boston.
- Lind, K. 1996, *Exploring Science in Early Childhood*, 2nd edition, Delmar, USA.
- Montague-SMith, A. 1998, *Supporting Science and Technology: A Handbook for Those Who Assist in Early Years Settings*, David Fulton Publishers, London.
- Rockwell, R., Williams, R. & Sherwood, E. 1992, *Everybody has a Body: Science from Head to Toe*, Gryphon House, Mr Rainer.
- Siraj-Blatchford, J. 1996, *Learning Technology, Science and Social Justice: An Integrated Approach for 3-13 Year Olds*, Education Now Publishing Co-operative, Nottingham.
- Siraj-Blatchford, J. 1999, *Supporting Science, Design and Technology in the Early Years*, Open University Press, Buschingham PA.
- Taylor, B.J. 1993, *Science Everywhere: Opportunities for Very Young Children*, Harcourt Brace Jovanovich College Publishers, Fort Worth.
- Van Tassel-Baska 1997, *Guide to Teaching a Problem-based Science Curriculum*, Kendall/Hunt Publishing Company, USA.

Winnett, D., Williams, R., Sherwood, E. & Rockwell 1994, *Discovery Science: Explorations for the Early Years*, Innovative Learning Publications, CA.

STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY | HOURS |
|----------------|-------|
| Assessment | 30 |
| Directed Study | 90 |
| Private Study | 45 |

ASSESSMENT DETAILS

| Description | Marks Out of | Wtg(%) | Required | Due Date |
|--------------|--------------|--------|----------|----------------------------|
| ASSIGNMENT 1 | 999.00 | 50.00 | Y | 09 Sep 2003 (see note) |
| ASSIGNMENT 2 | 999.00 | 50.00 | Y | 31 Oct 2003 |

NOTES:

- . 999 indicates that this course will be graded using one of the following letter grades: HD, A, B, C, F, or Incomplete. Plus and minus may be used with each of these letter grades.

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:

To complete each of the assignments satisfactorily, students must obtain at least a grade of C- for each assignment.
- 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:
 - (c) To be assured of receiving a passing grade a student must achieve at least 50% of the available weighted marks for the summative assessment items.
- 5 Method used to combine assessment results to attain final grade:

The final grades for students will be assigned on the basis of the weighted aggregate of the 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:

(d) There will be no Deferred or Supplementary examinations 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 1. Letter grades will be used for summative assessment items in this course
2. Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.
3. In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a course 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.
5. The Faculty will NOT accept submission of assignments by facsimile.