



The University of Southern Queensland

Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.
Please consult the web for updates that may occur during the year.

Description: Becoming Numerate

| Subject | Cat-nbr | Class | Term | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|-------------|
| PRT | 4201 | 96213 | 3, 2009 | ONC | 2.00 | Springfield |

| | |
|-----------------------------------|----------------------------|
| Academic group: | FOEDU |
| Academic org: | FOE002 |
| Student contribution band: | National Priority Teaching |
| ASCED code: | 070117 |

STAFFING

Examiner: John Green
Moderator: Nicole Todd

REQUISITES

Pre-requisite: PRT3201 and PRT3202

OTHER REQUISITES

State law in Queensland (Australia) requires that all adults working/undertaking professional experience/researching with children under the age of 18, in the state of Queensland are required to possess a current suitability card (Blue Card). (See "Other Requirements" for further information.) Also see: <http://www.childcomm.qld.gov.au/employment/bluecard/informationSheets.html>.

RATIONALE

Teachers of mathematics need a sound understanding and appreciation of those key mathematics concepts and relationships that are embodied in the primary and middle school mathematics curriculum. At the same time, teachers need to be confident and competent in planning for, and responding to, the mathematical needs of individual children within today's technologically rich learning environments. Effective professional practice can be developed by assisting prospective teachers to link their own understandings of mathematical concepts with their emerging personal and practical theories of teaching mathematics. Prospective teachers of mathematics will need to have access to situations which include the observation, discussion, and refinement of elements of observable mathematics teacher behaviours, as well as the opportunity to explore and extend their understanding of relevant mathematical concepts and associated effective pedagogies. In this way, a framework can be established for the development of skills that will enable them, as practising teachers, to reflect upon, adapt, and refine elements of their practice to meet the needs of the children in their mathematics classrooms.

SYNOPSIS

The predominant mode of delivery will be practical hands-on workshops conducted with the assistance of a specially designed workbook. The workbook contains numerous content samplings

from each strand within the primary and middle school mathematics curriculum. A variety of pedagogical frameworks for each content sampling will be analysed, compared, adapted, modified and refined in the context of group discussion and guided workshop activities. Readings, computers and workbook activities will be used to help students identify pedagogical challenges faced by the typical teacher of mathematics. Students will be encouraged to construct appropriate strategies and responses for addressing these situations and demonstrate frameworks for thinking about and articulating their own approaches to teaching mathematics. Components making up the first assessment item will be integrated into these workshops and assessed on a weekly basis during the workshops.

OBJECTIVES

The course objectives define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course students will be able to:

1. describe contemporary strategies and pedagogies for teaching mathematics in the primary and middle school years of schooling (Assessment 2)
2. demonstrate an understanding of the mathematical concepts that make up each strand in the Queensland P-10 Mathematics syllabus (Assessment 2)
3. demonstrate an understanding of the interconnecting relationships between the elements in each strand (Assessment 2)
4. identify pedagogical challenges faced by the typical teacher of mathematics (Assessment 1 and 2)
5. construct appropriate strategies and responses for addressing these situations (Assessment 1 and 2)
6. modify such strategies to suit particular needs and situations (Assessment 1 and 2)
7. demonstrate an ability to test their responses that have been, in the context of group meetings, exposed to adaptation and refinement (Assessment 1)
8. demonstrate frameworks for thinking about and articulating their own approaches to teaching mathematics (Assessment 2)
9. Demonstrate competence in and appropriate use of language and literacy, including spelling, grammar, punctuation and bibliographic referencing.

TOPICS

| | Description | Weighting (%) |
|----|---|---------------|
| 1. | Number strand concepts, issues and pedagogies | 30.00 |
| 2. | Patterns and algebra strand concepts, issues and pedagogies | 30.00 |
| 3. | Chance and data strand concepts, issues and pedagogies | 10.00 |
| 4. | Space strand concepts, issues and pedagogies | 15.00 |
| 5. | Measurement strand concepts, issues and pedagogies | 15.00 |

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).

'Video cassette' (Available: USQ Bookshop).

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.

Whether you are on, or off campus, the USQ Library is an excellent source of information <http://www.usq.edu.au/library/> . The gateway to education resources is here...
<http://www.usq.edu.au/library/faculties/education/default.htm>

Australian Association of Mathematics Teachers 2003, Springboards into Numeracy, *Proceedings of the National Numeracy Conference, 4-5 October, 2002*, Adelaide, SA.

Baroody, A, & Ginsburg, H 1990, *Children's learning; a cognitive view. Constructivist views on the teaching and learning of mathematics*, National Council of Teachers of Mathematics, Reston.

Bennett, A, & Nelson, T 2007, *Mathematics for elementary teachers: a conceptual approach*, 7th edn, WCB McGraw-Hill, Boston.

Drier, S 1999, , *Learning and Leading with Technology*, Vol 27, no.1, pp22-25.

Kamii, C 1994, *Young children continue to reinvent arithmetic- 3rd grade*, Teachers College Press, New York.

Rubenstein, RN, & Bright, GW 2004, *Perspectives on the teaching of mathematics (66th yearbook)*, 66th edn, National Council of Teachers of Mathematics, Reston, VA.

STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY | HOURS |
|-------------------|-------|
| Directed Study | 70.00 |
| Independent Study | 70.00 |

ASSESSMENT DETAILS

| Description | Marks out of | Wtg (%) | Due date |
|-----------------------------|--------------|---------|-----------------------------|
| PROFESSIONAL EXPERIENCE | 1.00 | 1.00 | 16 Nov 2009 (see note 1) |
| PORTFOLIO | 50.00 | 50.00 | 16 Jan 2010 |
| 2 HR RESTRICTED EXAMINATION | 50.00 | 50.00 | END S3 (see note 2) |

NOTES

1. 10 days of Professional Experience must be successfully completed. A mark of one (1) indicates you have passed the Professional Experience component. A mark of zero (0) indicates you have not passed the Professional Experience component. The weighting of

- 1% is used for administrative purposes only and is NOT included in the overall weighting for this course. Professional Experiences dates as per the Professional Experience timetable.
2. Students will be advised of the examination date for this course when the official timetable for the semester has been finalised.

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 5% of the total marks gained by the student for the assignment may apply for each working day late up to ten working days at which time a mark of zero may be recorded. No assignments will be accepted after model answers have been posted.
- 4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course and must satisfactorily complete the sector-based professional experience.
- 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 marks obtained for each of the summative assessment items in the course.
- 6 Examination information:
Candidates are allowed access only to specific materials during a Restricted Examination. The examiner will advise candidates regarding the materials they may use in the restricted examination for this course.
- 7 Examination period when Deferred/Supplementary examinations will be held:
By arrangement with examiner.
- 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.

OTHER REQUIREMENTS

- 1 **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.

- 2 Students will require access to e-mail and Internet access to UConnect for this course.
 - 3 Students are to use a recognised referencing system as specified by the examiner.
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