SIMON FRASER UNIVERSITY
SUMMER SEMESTER 2006

EDUC 475-4
DESIGNS FOR LEARNING: ELEMENTARY MATHEMATICS
(E02.00)

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THURSDAY 18:00-21:50 in Room A312 (UCFV Abbotsford)

PREREQUISITE: EDUC 401/402

DESCRIPTION

The mathematics curriculum in British Columbia has undergone major changes in the last few years. New content areas such as data analysis, statistics and probability have been added; traditional topics such as geometry have been revised and extended. Implementation of the curriculum now involves regular use of manipulatives and calculators by the students. Learning and assessment practices are becoming increasingly aligned with the most recent theories of mathematics education. In the 'reflective practitioner' model of teaching, the teacher is continually reviewing and interweaving theory, content and practice.

This course is designed for prospective and practicing elementary school teachers who wish to explore the fundamentals of the learning/teaching process as it applies to mathematics. Using the provincial Instructional Resource Package as an organizing framework, the class will review content and implementation. The course will draw on the latest research in mathematics learning, and will show how such findings may be used in the classroom. Goals for students in this course include: (1) developing familiarity with theories of mathematics learning and their application in the classroom; (2) developing expertise with the use of resources such as manipulatives and calculators; (3) beginning or continuing the accumulation of classroom and professional resources; and (4) increasing confidence and competence in one's abilities as a mathematician.

OUTLINE OF TOPICS

- Theories of mathematics learning
- Space and Measurement
- Number and number operations
- Estimation and mental computation
- Data analysis
- Problem solving
- Arithmetic operations
- Geometry
- Technology
- Evaluation
- Historical topics

REQUIREMENTS

Students will be expected to attend all classes, and to participate fully in class work and discussions and complete a number of assignments. Specific details will be discussed during first session. Assignments may include the following:

- problem-solving assignments in which students keep a journal to record their efforts over a period of time
- a presentation to the class demonstrating an idea, activity, or technique for teaching mathematics
- a lesson development assignment related to the B.C. Integrated Resource Package (IRP) for Mathematics
- a project related to his or her own interests, as negotiated with the instructor

REQUIRED TEXTS

Van de Walle, John A. & Folk, Sandra (2005) Elementary and Middle School Mathematics: Teaching Developmentally (First Canadian Edition) . Toronto: Pearson Education Canada. ISBN: 0-205-42077-X

British Columbia Ministry of Education (1995). Mathematics K to 7: Integrated Resource Package. (available from the Internet at http://www.bced.gov.bc.ca/irp/irp_math.htm)

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