

**SIMON FRASER UNIVERSITY
SUMMER SEMESTER 2005**

**EDUC 475-4
DESIGNS FOR LEARNING: ELEMENTARY MATHEMATICS
(D05.00)**

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THURSDAY 18:00-21:50 UCFV (Abbotsford) room A421

PREREQUISITE: EDUC 401/402

COURSE DESCRIPTION

The mathematics curriculum in British Columbia has undergone major change in the last few years. The revised curriculum includes new topics such as data analysis and probability, and other topics, such as geometry, receive greater emphasis. Calculators have become a natural component of the school program. Students are expected to use manipulative materials as a major vehicle for learning.

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. The course will draw on the latest research in mathematics learning, and will show how such findings may be used in the classroom. Students will be expected to become familiar with and confident in the use of a variety of manipulative materials such as geo-boards, pattern blocks, and coloured rods. They will also explore the realities of mathematical learning by examining their own learning powers and patterns. On completion of the course it is hoped that participants will feel more at ease with the subject of mathematics, be able to deal confidently with the prescribed curriculum, and be able to plan mathematical instruction within a consistent framework.

OUTLINE OF TOPICS

- Theories of mathematics learning
- 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. Specific details will be discussed during first session. Assignments given in previous years included the following:

- a problem-solving assignment in which students keep a journal to record their efforts over a period of time
- an assignment related to the secondary textbooks used in British Columbia
- 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 TEXT

Van de Walle, John A. Elementary & Middle School Mathematics: Teaching Developmentally (Canadian edition). Longman. New York, NY.

[Return to Education's Undergraduate 2005-2 Course Outlines Main Page.](#)
