

SIMON FRASER UNIVERSITY

EDUCATION 475-4

**DESIGNS FOR LEARNING: MATHEMATICS
(Elementary)
(E1.00)**

Spring Semester, 1992
(January 6–April 3)
Thursday, 4:30 - 8:20 p.m.
Location: MPX 7500 Front

Instructor: Aldona Kloster
Office: MPX 9507
Phone: 291-363

PREREQUISITE: Education 401/402.

COURSE DESCRIPTION

This course is designed for prospective and practising elementary school teachers who wish to explore the fundamentals of learning and teaching processes as they apply to mathematics. The course will draw on the latest research in mathematics education and also on current, innovative practice. Mathematics can be intellectually stimulating and enjoyable for both student and teacher. Participants in this course will examine their own, as well as children's, processes as learners of mathematics, and explore a variety of teaching strategies that promote understanding and enjoyment of mathematics. The use of manipulatives, like geoboards, Cuisenaire rods, and base-ten blocks will be emphasized, as will techniques that encourage communication about mathematics.

OUTLINE OF TOPICS

- theories of mathematics learning
- problem solving
- arithmetic operations
- estimation and mental computation
- rational numbers
- measurement
- calculators and computers
- data analysis
- geometry
- historical topics and algebra
- evaluation of children's learning

EVALUATION

Course grades will be based on

- attendance and participation in class activities and discussions
- participation in and documentation of a mathematical investigation
- an assignment to demonstrate familiarity with professional journals in mathematics education and authorized elementary mathematics textbooks
- a unit plan related to the BC Mathematics Curriculum, Grades 1-8
- an individual project

Details of assignments and due dates will be discussed during the first class.

TEXTBOOKS

Post, T. R. (ed.). (1988). Teaching mathematics in grades K-8: Research based methods. Toronto: Allyn and Bacon.

BC Ministry of Education. (1987). Mathematics Grades 1-8 Curriculum Guide.