SIMON FRASER UNIVERSITY

EDUCATION 475-4

DESIGNS FOR LEARNING: MATHEMATICS (ELEMENTARY)
D 2.00

Summer Intersession, 1989
(May 8 - June 16)
Mondays/Wednesdays
1:00 p.m. - 4:50 P. M.
Location: MPX 7500

Instructor: Ed O'Regan
Office: MPX 8673
Phone: 291-3745 (Office)

PREREQUISITES: Education 401/402, or equivalent.

OBJECTIVES

To consider the role of the teacher and of mathematics in the elementary school curriculum. To acquire the expertise to deal confidently with the prescribed new curriculum in mathematics for schools in B.C. (to develop the teaching strategies required to implement the new curriculum and to revise relevant mathematical content). A number of new topics in Data Analysis, Probability, and Algebra have been introduced into the curriculum, the grade placement of some topics in Number Operations has been revised, and more traditional topics such as Problem Solving and Geometry have been given a renewed and major emphasis. In addition, all pupils are expected to learn estimation skills and to be able to use a calculator as a learning aid. The findings of the latest research on the teaching of all these topics will be sampled.

On completion of the course, students should be able to:

Plan for instruction in mathematics. Construct a number of teaching and learning aids. Use a variety of manipulative materials such as Dienes blocks and geoboards. Apply some of the techniques of cooperative learning to the teaching of mathematics. Explore the use of language as a learning aid. Use a selection of evaluation techniques. Discuss the role of the teacher and mathematics in the elementary school curriculum.

OUTLINE OF TOPICS

* Learning theory and mathematics
* The four basic operations
* Measurement
* Algebra
* Problem solving
* Rational numbers
* Geometry
* Technology
* Prenumber concepts
* Ratio and proportion
* Data analysis
* Evaluation & Remediation

(Planning for instruction, language as learning aid, and the use of manipulatives will be linked to each topic.)

TYPICAL REQUIREMENTS

Students are expected to attend all classes and to participate fully in classwork and discussions. Assignment topics will include: (a) problem solving; (b) lesson and unit planning; (c) a review of professional journals; (d) a classroom presentation; (e) review of authorized textbooks; (f) exercises involving algorithms and manipulatives.

TEXTBOOK

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