

SIMON FRASER UNIVERSITY

EDUCATION 498-4

SPECIAL TOPICS:

COMPUTERS, CALCULATORS, AND MATHEMATICS TEACHING

Regular Summer Semester, 1991
(May 6 – August 2)
Tuesdays, 5:30 – 9:20 p.m.
Location: MPX 8542

Instructor: Dr. Tom O'Shea
Office: MPX 8642
Telephone: 291 – 4453 (office)
291 – 3395 (messages)

PREREQUISITES

EDUC 401/402, or equivalent. Basic familiarity with how to use a computer.

COURSE DESCRIPTION

Affordable hand-held calculators are only 20 years old; desktop computers are half that age. The calculator has had profound effects on the mathematical curriculum of the elementary school, and the computer has the potential to effect even greater change at the secondary level. To date, however, suggestions for instructional change have generally taken the form of rhetoric and exhortation rather than of demonstrations of how teachers may reasonably use the technology in their classrooms.

This course is designed for prospective and practising upper intermediate and secondary (Grades 6 to 12) teachers who wish to explore the use of technology to teach mathematics. In this course, we will explore how teachers can use calculators and computers to achieve instructional goals prescribed in curriculum guides and within the time typically allocated to mathematics instruction. Emphasis will be placed on technology as a tool for teaching and learning specific mathematical objectives rather than more global features of mathematical understanding. The calculators used in the course will include typical four-function calculators required in elementary schools, the T1-12 "Explorer" calculator, typical scientific calculators required in secondary schools, and the T1-81 and Casio graphics calculators. We will also use software designed to teach mathematics for the Apple II GS, Macintosh, and IBM computers, as well as more general applications such as spreadsheets and hypercard.

TYPICAL REQUIREMENTS

Specific assignments will depend on the number, background, and interests of students enrolled in the course. It is anticipated that students will undertake to develop teaching sequences using both calculators and computers.

In addition to specific assignments each student will be expected to complete a project related to his or her own interests, as negotiated with the instructor.

(Students taking the course for graduate credit will be required to undertake readings beyond those required for the Ed. 498 students and submit an additional assignment that addresses more theoretical issues.)