

Summer Semester 1998

**EDUC 475 - 4**  
**Designs for Learning: Mathematics**  
**(Secondary)**  
**D03.00**

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**PREREQUISITE**

Educ 401/402

**COURSE DESCRIPTION**

The mathematics curriculum in British Columbia has undergone major changes in recent years. The revised curriculum includes new topics such as data analysis, probability, vectors, and matrices. Other topics, such as geometry, are given greater emphasis than in the past. All students are expected to own and use a scientific calculator and graphing calculator. Teachers are encouraged to use manipulative materials in group settings as a major vehicle for learning.

The course is designed for prospective and practising secondary 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 calculator and a variety of manipulative materials such as geo-boards, algebra tiles, and probability simulators. 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.

**REQUIREMENTS**

Students will be expected to attend all classes, and to participate fully in classwork and discussions. Specific assignments will depend on the number and backgrounds of students enrolled in the course. Assignments given in previous years include 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
- an assignment that requires students to examine a number of professional journals related to the teaching of mathematics
- 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

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.

**REQUIRED TEXTBOOK**

Cangelosi, J. S. (1996) Teaching Mathematics in Secondary and Middle School: An Interactive Approach (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

**RECOMMENDED READING**

Province of B.C. (1996) Integrated Resource Package: Mathematics 8 to 10. Victoria, B.C.: Ministry of Education