

Education 475-4 Designs for Learning: Mathematics

(Elementary/Secondary)

Summer Semester, 1985

INSTRUCTOR: Dr. Tom O'Shea

Tuesdays, 1:00 - 4:50

LOCATION: MPX 8620

OBJECTIVES:

The course is designed for prospective and practising teachers who wish to explore the fundamentals of the teaching/learning process as it applies to secondary mathematics.

On completion of the course it is hoped that teachers 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:

The National Council of Teachers of Mathematics (NCTM) has suggested:

Prospective teachers of mathematics at any level should know and understand mathematics substantially beyond that which they may be expected to teach. They should be able to relate that mathematics to the world of their pupils, to the natural sciences, and to the social sciences. They should also be aware of the role of mathematics in our culture.

The focus of Education 475-4 will be on relating mathematics to the world of the students. The course will include investigations into the school curriculum, identification of valuable topics "outside" the curriculum, demonstrations of varying approaches to teaching specific topics, exposure to resources for remediation and enrichment, and opportunities for students to round out their own mathematics background.

REQUIREMENTS:

Students may be expected to:

- participate fully in classwork and discussions
- make one or more class presentations
- submit an assignment related to mathematics education journals
- submit an assignment related to the B.C. curriculum and textbooks
- complete a project related to the history of mathematics
- complete an individual project

TEXT REQUIRED:

Posamentier, A.S. & Stepelman, J. Teaching Secondary School Mathematics
Charles E. Merrill, (1981)

ELEMENTARY COURSE DESCRIPTION:

OBJECTIVES:

The course is designed for prospective and practising elementary school teachers who wish to explore the fundamentals of the learning/teaching process as it applies to mathematics. Students are expected to:

- become familiar with and confident in the use of a variety of manipulative aids such as colored rods, logic blocks, geo-boards, and so on;
- engage in discussion and formulate their own rationale as to the how and why of teaching mathematics;
- explore the realities of children's and adult's learning powers and patterns by an examination of their own learning powers and patterns.

On completion of the course it is hoped that teachers 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:

The topics to be dealt with are the usual contents of the B.C. Curriculum which will be examined from a methodological perspective (how do you teach multiplication, fractions, etc.), from the viewpoint of mathematics (what is multiplication, what are fractions, etc.), and from the vantage point of the role of mathematics in everyone's general growth (eg. integration with other subjects).

TYPICAL REQUIREMENTS:

Students will be expected to:

- participate fully in classwork and discussions, and complete homework assignments;
- make one or more presentations demonstrating an idea, activity, or technique for teaching mathematics;
- examine and analyze the B.C. Mathematics curriculum and representative textbooks.

ELIGIBILITY: Education 401/402 or equivalent.

TEXTBOOK:

Troutman, A.P. & Lichtenberg, B.K. Mathematics: A good beginning (2nd ed.). Belmont, California: Wadsworth, 1982.