

Summer Session 1999

**EDUC 475 - 4**  
**Designs for Learning: Mathematics**  
**(K-12)**

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Tuesday & Friday: 13:00 - 16:50

Location: MPX 7500F

**D02.00**

**PREREQUISITE**

Educ 401/402

**COURSE DESCRIPTION**

Over the past decade Mathematics Education has been transformed. The curriculum guides for school mathematics have been replaced with the Instructional Resource Package (IRP), and "Mathematics Programs," have replaced textbooks. The goal of this course is to provide classroom teachers at all levels with the knowledge and information necessary to make important pedagogical decisions about teaching mathematics and to provide opportunities for them to develop instructional plans. Throughout this course there is an emphasis on practical techniques, ideas, and materials that will help you to teach mathematics with increased confidence, knowledge, proficiency, and enjoyment. An additional goal is to help you foster these same characteristics in your own students.

**COURSE EMPHASIS:**

Since this course looks at mathematics education from the perspective of the broad spectrum the emphasis will be on connecting mathematical themes across the grades. Mathematics is the one subject where the level of success at one level can have a major effect on success in the next level. With this in mind, we will examine many of the curriculum topics through activities which put the participants in the roles of both teacher and learner. We will use "hands-on" materials, projects, worksheets, and mental mathematics. This is a "hands-on, mind-on" course based largely on the premise that we learn more and we learn differently when we are engaged in meaningful mathematical activities. Throughout this course we will be involved in explorations, discussions and observations, as we search for patterns, draw tentative conclusions, and attempt to adapt "new knowledge" and ideas to particular teaching situations.

**REQUIREMENTS**

Grades will be based upon three projects.

**1. Mathematics Curriculum Project - 40%**

You will work alone or within a group to develop a comprehensive plan for teaching one of the curriculum areas identified in the Instructional Resource Package. Details will be discussed in the second class.

**2. Tools for Teaching - 40%**

This project addresses engaging students in worthwhile meaningful mathematical activities. You will demonstrate your facility with one or more of the mathematical tools for teaching. To this end, the Instructional Resource Package and the prescribed text are excellent starting places. As above, details will be discussed in the second class.

**3. Classroom Demonstration - 20%**

This is an opportunity for you to demonstrate how you would teach a particular lesson related to the content of the course. The short episode will be presented during the last 4 sessions of the class. Procedures, requirements and expectations will be described and discussed in advance.

**REQUIRED TEXTS**

• *Mathematics K-7 Instructional Resource Package*, Ministry of Education, BC (hard copy or CD Rom)

and for Elementary Teachers, one of the following:

• *Activity Math: Using Manipulatives in the Classroom* (Grades 4-6)

OR • *Activity Math: Using Manipulatives in the Classroom* (Grades K-3) both by: Anne Bloomer and Phyllis Carlson

**\*\*\*Note: Secondary Teachers:** Handouts and text material TBA.

Suggested reading:

1. Ruckers, Rudy, *Mind Tools* ISBN 0-395-46810

2. Kappraff, Jay, *Connections: The Geometric Bridge Between Art and Science* ISBN 0-07-034251-2