

Summer Session 2000

EDUC 475 - 4
Designs for Learning: Mathematics
(K-12)
E01.00

Ken Harper
 Office: TBA
 Phone: 291-3395/(250) 598-6926
 E-mail: kharper@tnet.net

Tuesday & Thursday 17:30-21:20

PREREQUISITE

EDUC 401/402

COURSE DESCRIPTION

Over the past decade Mathematics Education has been transformed. The curriculum guide for school mathematics has 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 their own instructional plans. This course focuses on practical techniques, ideas, and materials that can help you to teach mathematics with increased confidence, knowledge, proficiency, and, hopefully, enjoyment. An additional goal is to help you foster these same qualities in your teaching.

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. And as mathematics is a subject where success at one level may have a major impact on succeeding levels we will examine many of the curriculum topics through activities where participants take on roles of both teacher and learner. We will use hands-on materials, projects, worksheets, and mental mathematics, calculators, and computers. This is a "hands-on, mind -on" course based on the premise that we learn more and differently when we are engaged in meaningful mathematical activities. Throughout this course we will observe, explore, and discuss, as we search for patterns, draw tentative conclusions, and adapt to our "new knowledge" and ideas.

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 IRP and prescribed texts are excellent starting places. 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 Phyliss 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