SIMON FRASER UNIVERSITY
SUMMER INTERSESSION 2008

EDUC 475-4
DESIGNS FOR LEARNING: ELEMENTARY MATHEMATICS
(D300)

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Monday & Wednesday 1:00-4:50 pm AQ4140

PREREQUISITE: EDUC 401/402

COURSE DESCRIPTION:
Recently, British Columbia mathematical curriculum has undergone major changes. While new topics are included—e.g. data analysis and probability—others have received greater emphasis—e.g. geometry. Additionally, the use of technological tools and manipulative materials by students is considered as a major vehicle for learning.
This course is designed for prospective and practicing elementary school teachers who wish to explore the fundamentals of the learning/teaching process as it applies to mathematics.

Drawing on the latest research in mathematics learning, this course 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 variety of manipulative materials such as geo-boards, pattern blocks, and coloured rods. 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.

TOPICS:
Pedagogical issues of the course are theories of mathematics learning, use of technology, and evaluation. The mathematical content includes: measurement, numbers and number operations, estimation and mental computation, data analysis, problem solving, arithmetic operations, geometry, and historical topics.

REQUIREMENTS:
Students will be expected to attend all classes, and to participate fully in class work and discussions. Specific details will be discussed during first session. Assignments could include the following:
1) Problem solving journal. Through the course students must solve several problems; their effort for the problems will be recorded in the journal.
2) A problem-solving assignment. A detailed description in which students keep a journal to record their efforts over a period of time while solving a specific problem.
3) Lesson design. A team presentation to the class demonstrating an idea, activity, or technique for teaching mathematics.
4) Diagnosis and Remediation math play. This assignment will be worked by teams, but submitted individually. From an overview of the beginnings interaction between the teacher and a student presenting a problematic learning situation, a diagnosis and remediation plan should be discussed.

Students will write out the balance of the fictional remediated situation in a form of a play.

REQUIRED TEXT:
Van de Walle, John A. & Folk, S. (2008) Elementary & Middle School Mathematics: Second Canadian Edition. Pearson Education Canada (ISBN-13: 9780205488391)

REFERENCES:
Province of British Columbia Integrated Resources Package: http://www.bced.gov.bc.ca/irp/

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http://www.educ.sfu.ca/ugradprogs/student_resources/index.html