SIMON FRASER UNIVERSITY
SUMMER SEMESTER 2006

EDUC 415-4
DESIGNS FOR LEARNING: SECONDARY MATHEMATICS
(E01.00)

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Tuesday 17:30-21:20 in EDB 8620F

PREREQUISITE: EDUC 401/402

COURSE DESCRIPTION

This course is designed for prospective and practicing secondary school teachers who wish to explore the learning and teaching process as it applies to secondary school mathematics.

The objective of the course is to provide the participants with appropriate learning experiences so that they feel confident designing secondary school mathematics instructions within a consistent framework using appropriate instructional materials and methods.

Participants will explore theoretical and practical aspects of mathematics teaching, their own learning, and their role as teachers. Different forms of mathematics learning and different instructional strategies will be experienced and explored in class, and theoretical and practical aspects of curriculum implementation, instructional materials (calculator, manipulatives, internet, etc.) and assessment and evaluation in mathematics teaching and learning will be investigated.

Dates and Times

May 9	5:30pm – 9:20pm	June 27	5:30pm – 9:20pm
May 16	5:30pm – 9:20pm	July 4	5:30pm – 9:20pm
May 23	5:30pm – 9:20pm	July 11	5:30pm – 9:20pm
May 30	5:30pm – 9:20pm	July 18	5:30pm – 9:20pm
June 6	cancelled	July 25	5:30pm – 9:20pm
June 13	5:30pm – 9:20pm	August 1	5:30pm – 9:20pm
June 20	5:30pm – 9:20pm		

Text: Posamentier, A.S., Smith, B., Stepelman, J. (2006). Teaching Secondary Mathematics: Techniques and Enrichment
Units (7th edition). ISBN: 0131185209

Graphing Calculator: Texas Instruments TI-83 Plus

Recommended on-line recourses:
Web Site Name URL
BC Ministry of Education Integrated Resource Packages
http://www.bced.gov.bc.ca/irp/irp.htm

BC Association of Math Teachers
http://www.bctf.bc.ca/bcamt/

History of Mathematics
http://www-groups.dcs.st-and.ac.uk/~history/ An extensive and searchable archive covering famous people and concepts, as well as describing the development of mathematics in various cultures.

Women in Mathematics
www.scottlan.edu/lriddle/women/women.htm
Provides biographies of various women in mathematics

Math TV http://www.mathtv.org
An interactive internet learning project to help middle-school students develop problem-solving skills. Includes videos on algebra, geometry, and probability.

STATISTICS CANADA Learning Resources www.statcan.ca/english/edu/index.htm
Homework help and information for students. Teaching tools and resources for teachers.

The Math Forum http://mathforum.org/ Drexel University math forum. Includes various resources for math from K-college.
Ask Dr. Math http://mathforum.org/dr.math/

NCTM http://www.nctm.org/

NCTM's Principles and Standards for School Mathematics http://standards.nctm.org/
90-Day Free Access to Full Document is available; a CD of Standards document is available on reserve.

Math Resources http://www.enc.org
An in-depth resource page including lessons, web links and math tools for K-12.
Classroom lessons http://www.mathsolutions.com/mb/content/publications/p_pub_13.html
www.teachnet.org

MATH AND LITERATURE www.share2learn.com/mathliterature.html
A teacher-created website that is full of children's books that teacher's have used when teaching math.

Enrichment / math competitions www.mathcounts.org
A website about enrichment programs and various math competitions. Includes math problems for students to practice their skills.

MATH ART GALLERY http://www-math.sci.kun.nl/math/knopen/art_gallery.html
A gallery of computer and mathematically generated artworks.

Illuminations (NCTM) http://illuminations.nctm.org
Includes lesson plans, tools, standards and web-resources for teachers

Recommended Software:
The Learning Equations http://tle.nelson.com/demo.html
The Geometer's Sketchpad http://www.keypress.com/sketchpad/

Course Requirements

1. Mathematical Journal (25%)
   Throughout the course you will be given several mathematics-based problems to work on. Your task is to keep a journal of
   your attempts to solve it. Evaluation will take into account your analysis of your attempts, not only

your "solution".
The journal is due on June 27th.

2. Reflective Journal (25%)
Throughout the course you will be asked to reflect on assigned readings and in-class discussions.
The journal is due on August 1st.

3. Individual Lesson (25%)
You will prepare a 15 minutes lesson on the topic of your choice and your level of competence, implementing the pedagogy
and methodology you were introduced to in this course. You will present it in class.
This is due on July 11th.

4. Course Project (25%)
Details of this assignment will be discussed in the first meeting.
This is due on July 25th.

Deadlines

June 27th	Math Journal Due
July 11th	Individual Lesson Due
July 25th	Class Project Due
August 1st	Reflective Journal Due

Grading Structure

Final Mark	Grade
96-100	A+
91-95	A
86-90	A-
81-85	B+
76-80	B
71-75	B-
66-79	C+
61-65	C
56-60	C-
46-55	D
0-45	F

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