SIMON FRASER UNIVERSITY
FALL SEMESTER 2007
EDUC 211-3
MATHEMATICAL EXPERIENCES I: NUMBERS AND BEYOND
(D100)

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Tuesdays 08:30-11:20
AQ 4140

PREREQUISITE:

Students who have taken, have received transfer credit for, or are currently taking MATH 151, 154 or 157 may not take EDUC 211 for credit without permission from the instructor.

COURSE DESCRIPTION:

This course explores a variety of mathematical topics in order to increase the mathematical literacy of Liberal Arts students in general and to increase their capabilities for quantitative reasoning and deductive argumentation in particular. Our focus is on the issues of aesthetics and utility of mathematical experience, emphasizing the human experience in learning and doing mathematics.

Though the course content comes from mathematics, the approach is a pedagogical one, which draws on the knowledge and practices from education rather than applying the lecture/tutorial format most commonly seen in undergraduate mathematics courses. Students will engage in problem solving, investigate conjectures, and develop connections among mathematical topics.

The mathematical content chosen for these courses is flexible and in other settings may be considered as "enrichment." However, in-depth exploration of these topics provides an engaging opportunity to revisit and strengthen more basic concepts that lie at the heart of numeracy.

Topics include: Fibonacci Numbers and Patterns of Nature; Pascal's Triangle; Integers: divisibility, cracking codes, prime numbers as building blocks; Modular arithmetic; Beyond integers: rational and irrational; Exploring the infinite; Mathematics of chance – topics in probability; Navigating through data – topics in statistics; Chaos and fractals.

COURSE REQUIREMENTS:
Active participation; Weekly homework; Midterm exam; Problem solving journal;
Collaborative project; Final exam

TEXT:
Burger, E. B. and Starbird, M. (2005). The Heart of Mathematics 2nd edition. Key
College Publishing ISBN: 1-931914-41-9.