

(—; 3-0-0)

## Elementary Concepts in Discrete Mathematics

MATH-013\*

MATH-013\* looks at ways in which mathematics can shed light on puzzling issues in political science and management science. The relationship between mathematics and its applications is an underlying theme. In accordance with the title of the course, specific examples are chosen to illustrate the use of discrete mathematics. This course was last offered in Winter 2004 and will be offered in Fall 2005. Topics presented in recent offerings of this course include:

- The mathematics of social choice (voting, analysis of political power, methods of fair division)
- Applications of graph theory to optimization problems in management science (minimizing cost/time/distance, scheduling processes and analysing production bottlenecks).

The nature of the course is influenced by the fact that many students who take it intend to become teachers. Course material is chosen so that students can engage in doing mathematics without relying on a great deal of mathematical background knowledge. MATH-013\* does not serve as a prerequisite for any other course taught by the Department of Mathematics and Statistics, and may not be used as part of a concentration in Mathematics or Statistics. Students who have taken more than two university mathematics courses cannot take this course without special permission.

**Textbook:** *Excursions in Modern Mathematics*, 3rd Edition  
by P. Tannenbaum and R. Arnold (Prentice-Hall)

**Prerequisite:** Ontario Grade 12 Mathematics *or* equivalent.

**Instructor:** G. Orzech

<b>Evaluation:</b>	Homework	20%
	Written Work	10%
	Midterm Test	30%
	Final Examination	40%