

## FOUNDATIONS OF MATH 12 (ONLINE)

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**SCHEDULE:** Monday/Wednesday 10:00am-2:00pm  
Tuesday/Wednesday 5:00pm-9:00pm  
**LEARNING CENTRE HOURS:** Monday-Thursday 10:00am-2:00pm  
Monday-Thursday 5:00pm-9:00pm  
The Learning Centre is closed all statutory and school holidays.

### INTRODUCTION

The general objectives of Foundations of Mathematics 12 are to develop number sense in financial applications, logical reasoning, critical thinking skills related to uncertainty, algebraic and graphical reasoning through the study of relations, and an appreciation of the role of mathematics in society. The following mathematical processes have been integrated throughout the course: communication, problem solving, connections, mental mathematics and estimation, reasoning, technology, and visualization. Foundations of Mathematics 12 is designed to prepare students for entry into post-secondary programs that do not require the study of theoretical calculus.

### PRESCRIBED LEARNING OUTCOMES *It is expected that students will:*

#### Financial Mathematics

- *solve problems that involve compound interest in financial decision making*
- *analyze costs and benefits of renting, leasing, and buying*
- *analyze an investment portfolio in terms of interest rate, rate of return, and total return*

#### Logical Reasoning

- *analyze puzzles and games that involve numerical and logical reasoning, using problem-solving strategies*
- *solve problems that involve the application of set theory*
- *solve problems that involve conditional statements*

#### Probability

- *interpret and assess the validity of odds and probability statements*
- *solve problems that involve the probability of mutually exclusive and non-mutually exclusive events*
- *solve problems that involve the probability of two events*
- *solve problems that involve the fundamental counting principle*
- *solve problems that involve permutations*
- *solve problems that involve combinations*

#### Relations and Functions

- *represent data, using polynomial functions (of degree  $\leq 3$ ), to solve problems*
- *represent data, using exponential and logarithmic functions, to solve problems*
- *represent data, using sinusoidal functions, to solve problems*

## LEARNING RESOURCES

The Foundations of Mathematics 12 online course does not require a textbook. All lessons and practice materials are provided online. Access information will be provided following registration. A graphing calculator is required for this course. The calculator used at CLOC and in the online lessons is Texas Instruments model TI-84 or TI-83.

## FOUNDATIONS OF MATHEMATICS 12 at CLOC

Foundations of Mathematics 12 at CLOC is a **self-paced, self-directed** course. You will be expected to work independently and to manage your time productively. If needed, individual help is available online or face-to-face at CLOC. An important element for success in Foundation of Mathematics 12 will be your study skills. Successful students establish a study schedule and stick to it.

## EVALUATION

Evaluation in Foundations of Mathematics 12 includes 8 unit tests, a midterm test, and a final exam. All tests include both multiple-choice and written-response questions. **All tests must be completed in person at CLOC.** To encourage mastery of course content, one rewrite is available for each unit test. No rewrite is allowed for the midterm test or the final exam. The tests will be weighted as follows:

| <u>TEST</u>  | <u>TOPIC</u>                          | <u>PERCENT</u> |
|--------------|---------------------------------------|----------------|
| Unit 1       | Finance: Investing Money              | 8              |
| Unit 2       | Finance: Borrowing Money              | 8              |
| Unit 3       | Set Theory                            | 6              |
| Unit 4       | Combinatorics                         | 8              |
| Midterm Test | Units 1–4                             | 15             |
| Unit 5       | Probability                           | 10             |
| Unit 6       | Polynomial Functions                  | 6              |
| Unit 7       | Exponential and Logarithmic Functions | 6              |
| Unit 8       | Sinusoidal Functions                  | 8              |
| Final Exam   | Units 1–8                             | 25             |
|              |                                       | <hr/>          |
|              |                                       | 100            |