



## MCF3M: Functions and Applications 11 Syllabus

Semester 1, 2020-2021

Mr. Armishaw • [barmishaw@rchs.on.ca](mailto:barmishaw@rchs.on.ca)

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### INTRODUCTION

Throughout this course, we are going to work through the content from a Christian perspective. We will see that mathematical models and functions can be applied to the world in many situations. This ability to see how math reflects the world around us is an important skill for people who live in the modern world where we are surrounded by technologies that are the end product of this view of the world. Thus, a fundamental understanding of math is important for citizens of our society. As Christians we need to be aware that the mathematical view of the world is not the only way of interpreting the world around us. We will explore the powers of mathematical modelling and the limits of its applicability. We will also look at the application of math to the finances of investments and examine how this can help us be wise stewards of our money. Ultimately, through the window of mathematical thinking, we will discover how God has built mathematical relations into the fundamental structures of the universe. This understanding will increase our ability to honour Him with all aspects of our lives.

### COURSE DESCRIPTION

This course introduces basic features of the function by extending students' experiences with quadratic relations. It focuses on quadratic, trigonometric, and exponential functions and their use in modeling real-world situations. Students will represent functions numerically, graphically, and algebraically; simplify expressions; solve equations; and solve problems relating to applications. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

### OUTLINE OF COURSE CONTENT

Unit #	Unit Title	Approx. # of Classes
Unit 1	Introduction to the Quadratic Function	14
Unit 2	The Algebra of Quadratic Expressions	10
Unit 3/4	Quadratic Functions and Equations	15
Unit 5	Trigonometry and Acute Triangles	11
Unit 6	Exponential Functions	11
Unit 7	Solving Financial Problems Involving Exponential Functions	8
Unit 8	Sinusoidal Functions	10
	Review and CPT	5

### MATERIALS:

- 3 ring binder
  - Textbook
  - Agenda
  - Lined paper (that you can easily take out and hand in)
  - Pencils (all work is to be done with pencil)
  - Pencil sharpener
  - Eraser
  - Ruler
  - Protractor
  - Pens (red and blue)
  - Dividers or sticky tabs (8 - one for each unit)
  - Calculator (non-graphing) – 2 line is ideal
  - Textbook - Small et al. *Functions and Applications 11*. Nelson, 2008.
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## ASSESSMENT of STUDENT LEARNING

Assessments of learning for this course will span the four categories of Knowledge/Understanding, Thinking/Problem Solving, Communication and Application as outlined in the achievement chart for Mathematics. Evidence of student achievement for evaluation is collected over time from three different sources – observations, conversations, and student products.

<i>Assessments for Learning</i>	<i>Assessments as Learning</i>	<i>Assessments of Learning</i>
Opener questions Quizzes Learning skills observations	Checking homework Journal entries Peer assessments	Unit Tests Performance Tasks Final Exam Summative Performance Task Review Conferences

### Calculation of the Final Grade:

Evaluation Instrument	Value	Approx Wt	Learning Category
Tests Unit Review Conferences	45% (Prod) 5% (Obs, Conv)	11%	Communication
		17%	Knowledge/Understanding
		14%	Thinking/Problem Solving
		8%	Application
Unit Performance Tasks	20% (P)	6%	Communication
		3%	Knowledge/Understanding
		8%	Thinking/Problem Solving
		3%	Application
Final Review Conference Summative Task Final Exam	5% (O,C) 10% (P) 15% (P)	5%	Communication
		10%	Knowledge/Understanding
		10%	Thinking/Problem Solving
		5%	Application

## STUDENT EXPECTATIONS

Members of this class will treat the classroom, each other and the learning endeavour with respect as is fitting for a Christian. Respect for each other is the acknowledgment that the people around us are valued by God and should be treated with care. Respect for learning is an acknowledgment that God's world is important and is worth caring for and learning about. Respect for the classroom is an acknowledgment that this is God's school and that everything in it is a gift from Him and should not be treated lightly.

### Student Responsibilities:

1. I will watch my words and speak to all others in the class with respect and encouragement.
2. I will arrive in class on time and prepared to work.
3. I will do my best to not distract others so they can learn.
4. I will do my best to stay caught up in my work but if I fall behind in my work or experience difficulties I will discuss this with the teacher so we can develop a recovery plan together.
5. I will do my best to hand in assignments on time. If I am experiencing difficulty I will talk to the teacher **before it is too late**. I realize that, barring sickness or other excused absence, late assignments will have 10% deducted/day for up to 5 days, then the assignment will receive a mark of zero.

### Teacher Responsibilities:

1. I, the teacher, will watch my words and speak to the students with respect and encouragement.
  2. I, the teacher, will arrive on time with the lesson prepared.
  3. The teacher will ensure that the success criteria for all assessments of learning are clearly outlined for the students.
  4. The teacher will hand back assessments of learning promptly.
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