



**Course:** MCR 3U

**Teacher(s):** Pinizzotto, Clement

**Program Leader:** R. Marchildon

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**Course Website:** Google Classroom

## **Course Description:**

- This course introduces the mathematical concept of the function by extending the student's experiences with linear and quadratic relations.
- Students will investigate properties of discrete and continuous functions, including trigonometric and exponential functions; represent functions numerically, algebraically, and graphically; solve problems involving applications of functions; investigate inverse functions; and develop facility in determining equivalent algebraic expressions.
- Students will reason mathematically and communicate their thinking as they solve multi-step problems.
- Prerequisite: Principles of Mathematics, Grade 10, Academic

## **Big Ideas** (overall learning outcomes for the course):

- Modelling situations in real life with functions helps us make educated predictions.
- Looking for patterns in math helps us better understand the world around us.

## **Overall Curriculum Expectations:**

By the end of this course, students will:

- demonstrate an understanding of functions, their representations, and their inverses, and make connections between the algebraic and graphical representations of functions using transformations;
- determine the zeros and the maximum or minimum of a quadratic function, and solve problems involving quadratic functions, including problems arising from real-world applications;
- demonstrate an understanding of equivalence as it relates to simplifying polynomial, radical, and rational expressions;
- evaluate powers with rational exponents, simplify expressions containing exponents, and describe properties of exponential functions represented in a variety of ways;
- make connections between the numeric, graphical, and algebraic representations of exponential functions;
- identify and represent exponential functions, and solve problems involving exponential functions, including problems arising from real-world applications;
- demonstrate an understanding of recursive sequences, represent recursive sequences in a variety of ways, and make connections to Pascal's triangle;
- demonstrate an understanding of the relationships involved in arithmetic and geometric sequences and series, and solve related problems;
- make connections between sequences, series, and financial applications, and solve problems involving compound interest and ordinary annuities;
- determine the values of the trigonometric ratios for angles less than  $360^\circ$ ; prove simple trigonometric identities; and solve problems using the primary trigonometric ratios, the sine law, and the cosine law;
- demonstrate an understanding of periodic relationships and sinusoidal functions, and make connections between the numeric, graphical, and algebraic representations of sinusoidal functions;
- identify and represent sinusoidal functions, and solve problems involving sinusoidal functions, including problems arising from real-world applications.



# Westside Secondary School

Orangeville, Ontario, Canada



## Instructional Strategies:

Westside teaching staff will use a variety of instructional strategies to help students develop and improve skills in the following areas: character, citizenship, communication, critical thinking and problem solving, collaboration and teamwork, and creativity and imagination.

## Assessment and Evaluation:

Formative assessments are used to improve student learning by providing varied opportunities to demonstrate an understanding of course expectations in preparation for summative evaluations. Students will have the opportunity to complete mastery quizzes throughout each unit which may lead to a reduced summative assessment. Summative evaluations test groups of key expectations. Failure to complete a summative evaluation may result in the expectations of the course not being met and the credit not being granted.

The following soft skills will be assessed:

*Responsibility, Organization, Independent Work, Collaboration, Initiative, Self-Regulation*

More details about Westside's Assessment and Evaluation Policy is available at:

<http://www.ugdsb.ca/westside/wp-content/uploads/sites/74/2016/12/Westside-Assessment.pdf>

## Late Policy

Students are expected to complete all assigned work and submit it by the teacher's established due date. Every attempt will be made to encourage students to complete all assigned work on time so their grade represents their actual achievement. For late and missed summative assessments, please see the ***Westside Students' Contract for Missing Evidence of Learning***.

## Achievement Categories:

Student learning is assessed and evaluated with respect to the following four categories of knowledge and skills.

**Knowledge and Understanding:** 25%

**Thinking:** 25%

**Communication:** 25%

**Application:** 25%

Unit of Study	Term Work (70%) - Summative Evaluations
Functions	Paper & Pencil Test
Rationals and Quadratics	Paper & Pencil Test, Bridges Assessment Task
Trigonometry	Paper & Pencil Test, Ferris Wheel Assessment Task
Exponential Functions	Paper & Pencil Test
Sequences & Series, Finance	Paper & Pencil Test, Finance Assessment Task
	<b>Final Summative (30%)</b>
Specific units	In-class Final Summative Task (2 days) - 10%
All units	Final Exam - 20%



## Course Materials and Replacement Cost:

Textbook: Nelson: Functions 11 - \$90

## Student Expectations

Every student enrolled in Mathematics at Westside is expected to:

- be prepared for class each and every day. This means you bring a writing utensil, calculator and paper with you to class
- actively participate in class discussions
- be on time to class
- complete homework assigned
- learn to problem solve using the techniques you will learn in class

## Final Assessments/Examinations

Culminating activities for each unit must be completed by the student in order to achieve the credit. Failure to complete any one of them may result in loss of credit.

**There are no extensions or exemptions for final assessments without the approval from an administrator.**

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I have read and understand the Course Outline: (all 3 pages)

Student Name (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Parent/Guardian Name (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Parent/Guardian email (please print): \_\_\_\_\_