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##### 2018 – 2019

##### Grade 11, University Preparation

### Functions

MCR3U1

**Evaluation Profile & Outline**

## Earl Haig

SecondarySchool

**Course Description/Rationale/Overview:**

This course prepares the student to take any of the three grade 12 university preparation courses in mathematics. Topics covered include algebra, quadratic functions, transformations, trigonometry, sequences and series and an introduction to the mathematics of finance.

**Class Requirements:**

Materials/textbooks/equipment

Text (supplied)

 Mathematics 11

 McGraw-Hill, Ryerson

Replacement textbook cost: $90.00

Calculator

Notebook and materials for note-taking

**Course Requirements/Department Policies**

Late Assignments

Late assignments must be accompanied with a note signed by a parent or guardian stating the reason for late submission. The note must list the due date of the assignment and the actual date of submission.

**Marks will be deducted for late assignments, up to and including the full value of the assignment.** [Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools, Ministry of Ontario, 2010, pg. 43.]

Missed Tests

Arrangements for missed tests for valid reasons must be made ahead of time if known in advance, or the teacher must be contacted on the day of the test by phone (395-3210 ext. 20080) in case of illness or other unexpected absence. The student should be prepared to write the test immediately upon return to school.

#### Assessment Strategies

Diagnostic Quizzes Homework Check

Diagnostic Tests Group Work

In-class Assignments Technology Based Tasks

Peer Assessments Observations

Class Participation/Interaction

Conferences/Interviews

#### Extra Help Availability

Monday to Thursday after school through Peer Tutoring program.

All extra help sessions are held in room 248.

Students should make appointments with their teachers to get extra help.

**Curriculum strands:**

* Financial Applications of series & sequences
* Trigonometric functions
* Tools for operating & communicating with functions

**Learning Skills:**

* Responsibility
* Initiative
* Organization
* Independent Work
* Collaboration
* Self-regulation

FINAL MARK

Year’s Work: 70%

Final Exam 30%

Achievement Categories and Weighting

Knowledge & Understanding 25%

Application 20%

Thinking 10%

Communication 15%

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1. **Exponents, Polynomials and Rational Expressions**

Integral and rational exponents

Operations with polynomials

Simplifying rational expressions

Operations with rational expressions and Restrictions

1. **Quadratic Functions & Equations**

###### Radicals and Operations with radicals

 Maximum & minimum value of a quadratic function by completing the square

 Solving quadratic equations and inequalities and linear inequalities

 Determining quadratic equations given real roots

Solving Linear-Quadratic Systems

Nature of the roots and the discriminant

1. **Transformations**

###### Functions and function notation

Graphing basic functions such as , , , , , 

Vertical & horizontal translations, reflections & stretches

Combinations of transformations

Inverse functions

1. **Exponential Functions**

Growth and Decay

Transformations

Rates of Change

Modeling; Solving Equations

1. **Trigonometry**

Review of trigonometric ratios for right triangles and Reciprocal ratios

Unit circle

Sine and cosine of angles greater than 90 degrees (CAST Law)

Sine law, Cosine law and the Ambiguous Case

Problem Solving

Special triangles and exact trigonometric ratios

Trigonometric identities including reciprocal identities

1. **Trigonometric Functions & Graphs**

Graphing  and , in Degrees

Transformations of periodic functions, Applications and Solving Equations

7. Sequences, Series and Mathematics of Finance I

 Introduction to sequences and Recursions rules

 Arithmetic & Geometric sequences & series

 Binomial Theorem and Pascal’s Triangle

8. **Sequences, Series and Mathematics of Finance II**

Sum of an Arithmetic and Geometric Series

Simple Interest, Compounding Interest, Present Value

Future and present value of an ordinary annuity

7. **Conics – 11 U only** (equations of circles, ellipses, hyperbolas & parabolas)

**Course Outline**