

Evaluation Profile & Outline

2007/2008
Grade 12, University Preparation
Advanced Functions
MHF 4U



Earl Haig
Secondary
School

Course Description/Rationale/Overview:

This course extends students' experience with functions. Students will investigate the properties of polynomial, rational, logarithmic, and trigonometric functions; develop techniques for combining functions; broaden their understanding of rates of change; and develop facility in applying these concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended both for students taking the Calculus and Vectors course as a prerequisite for a university program and for those wishing to consolidate their understanding of mathematics before proceeding to any one of a variety of university programs.

Class Requirements:

Calculator (scientific, not graphing)

Textbook : (supplied)

A deposit cheque in the amount of \$80, signed but not dated, is required when the text is issued. The cheque is to be made out to Earl Haig S.S.

Replacement textbook cost: \$80.00

Course Requirements/Department Policies

Course Prerequisites: MCR 3U

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.

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.

If an assignment is handed in after it has been taken up/handed back, the student may not receive a mark for it.

Assessment Strategies

Homework
Tests
Quizzes
Assignments
Examination

Mathematical Process Expectations

Problem Solving
Reasoning and Proving
Reflecting
Selecting Tools and Computational Strategies

Connecting
Representing
Communicating

Achievement Categories and Weighting

Knowledge & Understanding	50 %
Application	25 %
Problem Solving & Inquiry	15 %
Communication	10 %

Curriculum strands:

- Exponential and Logarithmic Functions
- Trigonometric Functions
- Polynomial and Rational Functions
- Characteristics of Functions

Learning Skills:

- Works Independently
- Team work
- Organization
- Work Habits
- Initiative

Evaluation

Quizzes & Assignments	15 %
Tests	55 %
Final Evaluation	30 %

Tests are written by all students on the same day and are designed so that students in different class sections will write tests of essentially equivalent difficulty.

Students taking MHF 4U over the whole year will write the test over two consecutive days.

Quizzes will be a regular feature of evaluation.

The final examination is compulsory.

FINAL MARK

Year's Work:	70 %
Final Summative Evaluation	30 %



A. Exponential and Logarithmic Functions

1. Demonstrate an understanding of the relationship between exponential expressions and logarithmic expressions, evaluate logarithms, and apply the laws of logarithms to simplify numeric expressions.
2. Identify and describe some key features of the graphs of logarithmic functions, make connections among the numeric, graphical, and algebraic representations of logarithmic functions, and solve related problems graphically.
3. Solve exponential and simple logarithmic equations in one variable algebraically, including those in problems arising from real-world applications.

B. Trigonometric Functions

1. Demonstrate an understanding of the meaning and application of radian measure.
2. Make connections between trigonometric ratios and the graphical and algebraic representations of the corresponding trigonometric functions and between trigonometric functions and their reciprocals, and use these connections to solve problems.
3. Solve problems involving trigonometric equations and prove trigonometric identities.

C. Polynomial and Rational Functions

1. Identify and describe some key features of polynomial functions, and make connections between the numeric, graphical, and algebraic representations of polynomial functions.
2. Identify and describe some key features of the graphs of rational functions, and represent rational functions graphically.
3. Solve problems involving polynomial and simple rational equations graphically and algebraically.
4. Demonstrate an understanding of solving polynomials and simple rational inequalities.

D. Characteristics of Functions

1. Demonstrate an understanding of average and instantaneous rate of change, and determine, numerically and graphically, and interpret the average rate of change of a function over a given interval and the instantaneous rate of change of a function at a given point.
2. Determine functions that result from the addition, subtraction, multiplication, and division of two functions and from the composition of two functions, describe some properties of the resulting functions, and solve related problems.
3. Compare the characteristics of functions, and solve problems by modeling and reasoning with functions, including problems with solutions that are not accessible by standard algebraic techniques.