

COURSE INFORMATION SHEET

DATE: SEPTEMBER 2008
SECONDARY SCHOOL: THE IRISH EXPERIENCE
DEPARTMENT HEAD: P. DOHERTY
TEACHER: P. DOHERTY
DEPARTMENT: MATH



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| CURRICULUM POLICY DOCUMENT | | THE ONTARIO CURRICULUM GRADES 11 AND 12: MATHEMATICS | |
| COURSE TITLE | Advanced Functions, Grade 12, University Preparation | COURSE CODE | MHF4U |
| | | GRADE | 12 |
| PRE-REQUISITE | MCR3U | CREDIT VALUE | 1 |

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| COURSE DESCRIPTION |
| <p>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.</p> |

| LISTED IN ORDER OF INSTRUCTIONAL DELIVERY | |
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| STRAND/UNIT TITLES: | OVERALL EXPECTATIONS |
| Exponential and Logarithmic Functions | <ol style="list-style-type: none"> 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. |
| Trigonometric Functions | <ol style="list-style-type: none"> 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. |
| Polynomial and Rational Functions | <ol style="list-style-type: none"> 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 polynomial and simple rational inequalities. |
| Characteristics of Functions | <ol style="list-style-type: none"> 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; |

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| Characteristics of Functions (contd) | 3. compare the characteristics of functions, and solve problems by modelling and reasoning with functions, including problems with solutions that are not accessible by standard algebraic techniques. |
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Textbooks: Advanced Functions and Introductory Calculus ; Harcourt (Replacement Cost:\$60)
 Functions and Relations 11; Addison-Wesley (Replacement Cost:\$60)

| STUDENT EVALUATION CRITERIA | | | | |
|------------------------------------|----|---------------------------------------|----|------------------------------------------------------------|
| TERM – 70% | | FINAL – 30% | | FINAL REPORT CARD GRADE CALCULATION |
| 10 ≤ WEIGHTING ≤ 40 | | WEIGHTING | | TERM TOTAL + FINAL TOTAL = REPORT CARD MARK |
| KNOWLEDGE | 40 | EXAM /SUMMATIVE ASSESSMENT | 30 | |
| INQUIRY | 10 | | | |
| COMMUNICATION | 10 | | | |
| APPLICATION | 10 | | | |
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| TOTAL | 70 | TOTAL | 30 | |

QUIZ AND TEST POLICY

Unit tests and quizzes are a required part of the assessment and evaluation in the course. Students who are absent on the day of a test, on returning to class, must produce a letter detailing the medical reason for absence. As a result of this, ‘no mark’ will be entered for the student. This will have no effect on the student’s average. After the exam, ‘no mark’ will be replaced by the exam mark with the suitable weighting.

For example: Student, with acceptable reason for absence, misses a unit test worth 36 marks. The student’s final exam mark is 76%. Therefore, ‘no mark’ will be replaced by 36x76% i.e. 27.4 to one decimal place.

When a test or quiz date is announced by the teacher, it is very important that each student check her/his schedule immediately and inform the teacher of any conflicting **SCHOOL** activity.

ABSENCES

Absence from class should be kept to a minimum in order to achieve at the highest level.

If a student knows in advance of an absence, he/she should ask the teacher for the relevant work.

If the absence is unexpected, the student should phone a classmate or the school (416-393-5556) to find out the missed work.

LEARNING SKILLS CRITERIA

IN EACH REPORTING PERIOD, REPORT ON THE QUALITY OF THE LEARNING SKILLS DEMONSTRATED BY THE STUDENT IN EACH OF THE CATEGORIES IDENTIFIED ON THE REPORT CARD USING THE FOLLOWING LETTER SYMBOLS.

E-EXCELLENT

G-GOOD

S-SATISFACTORY

N-NEEDS IMPROVEMENT

WORKS INDEPENDENTLY

- accomplishes tasks independently
- accepts responsibility for completing tasks
- follows instructions
- regularly completes assignments on time and with care
- demonstrates self-direction in learning
- independently selects, evaluates, and uses appropriate learning materials, resources, and activities

- demonstrates persistence in bringing tasks to completion
- uses time effectively
- uses prior knowledge and experience to solve problems and make decisions
- reflects on learning experiences

ORGANIZATION

- organizes work when faced with a number of tasks
- devises and follows a coherent plan to complete a task
- follows specific steps to reach goals or to make improvements
- revises steps and strategies when necessary to achieve a goal

- manages and uses time effectively and creatively
- demonstrates ability to organize and manage information
- follows an effective process for inquiry and research
- uses appropriate information technologies to organize information and tasks

INITIATIVE

- seeks out new opportunities for learning
- responds to challenges and takes risks
- demonstrates interest and curiosity about concepts, objects, events, and resources
- seeks necessary and additional information in print, electronic, and media resources
- identifies problems to solve, conducts investigations, and generates questions for further inquiry
- requires little prompting to complete a task, displaying self-motivation and self-direction

- approaches new learning situations with confidence and a positive attitude
- develops original ideas and devises innovative procedures
- attempts a variety of learning activities
- seeks assistance when needed
- uses information technologies in creative ways to improve learning for self or others

TEAMWORK

- works willingly and cooperatively with others
- shares resources, materials, and equipment with others
- responds and is sensitive to the needs and welfare of others
- solves problems collaboratively
- accepts various roles, including leadership roles
- takes responsibility for his or her own share of the work to be done
- works to help achieve the goals of the group or the class
- helps to motivate others, encouraging them to participate
- contributes information and ideas to solve problems and make decisions

- questions the ideas of the group to seek clarification, test thinking, or reach agreement
- shows respect for the ideas and opinions of others in the group or class
- listens attentively, without interrupting
- in discussions, paraphrases points of view and asks questions to clarify meaning and promote understanding
- recognizes the contribution of group members by means of encouragement, support, or praise
- seeks consensus and negotiates agreement before making decisions

WORK HABITS/HOMEWORK

- completes homework on time and with care
- puts forth consistent effort
- follows directions
- shows attention to detail
- uses materials and equipment effectively

- begins work promptly and uses time effectively
- perseveres with complex projects that require sustained effort
- applies effective study practices