

Canada World Education Centre Course Outline

Course: Functions and Applications			
Grade: 11	Type: University/College	Credit Value: 1	Course Code: MCF3M
Teacher: J.F. Michaud		Development Date: 04/15/2019	
Course Reviser: Vizarat Shaikh		Prerequisite: MPM2D, MFM2P	
Date:			
Ministry Curr. Doc: The Ontario Curriculum Grades 9 to 12, Course Descriptions and Prerequisites, 2018			
Course Description			
<p>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 modelling 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.</p>			
Overall Expectations for Student Learning			
By the end of the course, students will:			
Quadratic Functions	<ul style="list-style-type: none"> expand and simplify quadratic expressions, solve quadratic equations, and relate the roots of a quadratic equation to the corresponding graph; demonstrate an understanding of functions, and make connections between the numeric, graphical, and algebraic representations of quadratic functions; solve problems involving quadratic functions, including those arising from real-world applications. 		
Exponential Functions	<ul style="list-style-type: none"> simplify and evaluate numerical expressions involving exponents, and make connections between the numeric, graphical, and algebraic representations of exponential functions; identify and represent exponential functions, and solve problems involving exponential functions, including those arising from real-world applications; demonstrate an understanding of compound interest and annuities, and solve related problems. 		
Trigonometric Functions	<ul style="list-style-type: none"> solve problems involving trigonometry in acute triangles using the sine law and the cosine law, including problems arising from real-world applications; demonstrate an understanding of periodic relationships and the sine function, and make connections between the numeric, graphical, and algebraic representations of sine functions; identify and represent sine functions, and solve problems involving sine functions, including those arising from real-world applications. 		

Outline of Course Content Unit:	Hours:
Unit 1. Introduction to Functions Unit 2. Functions through Quadratics Unit 3. Investigating Quadratics Unit 4. Quadratics Highs and Lows Unit 5. Exponential Functions Unit 6. Financial Applications of Exponential Functions Unit 7. Acute Triangle Trigonometry Unit 8. Trigonometric Functions	10 10 15 15 10 15 15 20
<p>Teaching and Learning Strategies</p> <p>Teachers use a variety of teaching strategies to maximize student learning. The following teaching strategies will be used in this course:</p> <p>Helping students become self-directed.</p> <p>In order to address the unique learning styles of students in this course, a variety of activities and learning experiences should be offered, including, but not restricted to: questioning, demonstrations, role-plays, simulations, co-operative group learning, brainstorming, discussion, peer coaching, interviewing, reflective writing, reflective thinking exercises, concept mapping, reading, tutoring, direct instruction, one-on-one teaching, and experimental learning.</p> <p>Teachers will find ways throughout the course for students to make authentic learning connections with their other courses, the school, local community and the world at large.</p>	
<p>Assessment & Evaluation of Student Performance</p> <p>Assessment & Evaluation</p> <p>The primary purpose of assessment and evaluation is to improve student learning and to help students assume responsibility for their learning.</p> <p>Mid-semester and final marks are determined through evaluations or Assessments of Learning, which typically occur towards the end of a unit and end of semester. During the learning process, information about a student's learning is gathered and used by the teacher and student to inform decisions that affect goal setting and teaching in the classroom. The data gathered as Assessment as Learning and Assessment for Learning do not carry a mark weight, but do play a crucial role in student success as they help inform the teacher about each student's progress. All types of assessments allow teachers to provide descriptive feedback that is clear, specific, meaningful, and timely to support improved learning and achievement.</p>	

Learning Skills and Work Habits (responsibility, organization, independent work, collaboration, initiative, self-regulation) will be reported by a letter (E = Excellent, G = Good, S = Satisfactory, N = Needs Improvement). These skills and habits support a high level of success in meeting the course expectations in addition to contributing to the development of positive life and work skills for the future.

Considerations for Program Planning

Program Planning Considerations

- **Individual Education Plan:** Accommodations to meet the needs of exceptional students as set out in their Individual Education Plan will be implemented within the classroom program. Additional assistance is available through the Special Education program.
- **The Role of Technology in the Curriculum.** Using information technology will assist students in the achievement of many of the expectations in the curriculum regarding research, written work, analysis of information, and visual presentations.

- **English As a Second Language (ESL):** Appropriate accommodations in teaching, learning, and evaluation strategies will be made to help ESL students gain proficiency in English, since students taking ESL at the secondary level have limited time in which to develop this proficiency.

Resources

Technological Devices:

CWEC supports the use of technology to enhance learning, but the use of such electronic technology in the classroom is at the discretion of the teacher. Working together we can ensure the appropriate use of technology by all members of our school community