



COURSE OVERVIEW 2023-2024

Course Name:	Functions Grade 11	Course Code:	MCR 3U
Course Type:	Grade 11 University Preparation	Credit Value:	1.0
Teachers(s):	Mr. Bannon, Mr. Cowling, Ms. Dymock, Mr. Kenagy		

Course Description:

This course introduces the mathematical concept of the function by extending students' 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; and develop facility in simplifying polynomial and rational expressions. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

<http://www.edu.gov.on.ca/eng/curriculum/secondary/math1112currb.pdf>

Prerequisite: Principles of Mathematics, Grade 10, Academic (a minimum mark of 70% recommended)

Course Overall Expectations:

Strand	Overall Expectations
Characteristics of Functions	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 those arising from real-world applications;
	demonstrate an understanding of equivalence as it relates to simplifying polynomial, radical, and rational expressions.
Exponential Functions	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 those arising from real-world applications.
Discrete Functions	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.

Course Overall Expectations:

Strand	Overall Expectations
Trigonometric Functions	determine the values of the trigonometric ratios for angles less than 360 degrees; 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 those arising from real-world applications.

Assessment and Evaluation Strategies:

The purpose of assessment and evaluation is to improve student learning. Assessment and evaluation is based on the provincial curriculum expectations and the achievement levels outlined in the curriculum document. In order to ensure that assessment and evaluation are valid and reliable, and that they lead to the improvement of student learning, teachers use a variety of strategies throughout the course, including: providing students with feedback about their work (known as assessment for learning), helping to set learning goals and monitor their own progress (known as assessment as learning), and evaluation and reporting of progress in the form of grades and marks (known as assessment of learning).

Unit Overview	Assessment and Evaluation Methods (May include major evaluations)
Algebra	quizzes, performance tasks, assignments, projects, unit tests
Representing Functions	
Quadratic Functions	
Trigonometric Functions	
Extending Trig Skills	
Exponential Functions	
Sequences and Series	
Financial Mathematics	
Course Culminating Activities by Strand	One per strand
Final Exam	

Assessment and Evaluation Categories and Weights:

Achievement Chart Categories		Evaluation/Weight of Marks	
Achievement Category	Percentage	Evaluation	Percentage
Knowledge/Understanding	35	Term Evaluation	70
Thinking/Inquiry	15	Final Evaluation	15
Communication	15		
Application	35	Culminating Assignments	15
		Exam	15

Learning Skills and Work Habits Assessment:

The development of learning skills and work habits is an integral part of student learning. These skills are:

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

Learning skills and work habits influence student achievement and are included as a formal part of the assessment and evaluation process. Learning skills and work habits will be assessed through a variety of teacher strategies. (e.g. observation, student /teacher conference, self-reflection, checklists, exit cards, etc.) These important learning skills and work habits will be formally reported on the Provincial Report Card according to the following scale: E- Excellent, G- Good, S- Satisfactory, N- Needs Improvement.

Academic Dishonesty - Cheating and Plagiarism:

Learning tasks that students complete as well as the assignments, tests and exams that students submit for evaluation must be their own work. Cheating and plagiarism is a serious offence that will not be condoned. Academic consequences will result.

Test Policy:

According to the Growing Success Document (2010) a student must fulfill his/her responsibilities and commitments within the learning environment, including completing all types of assessments according to agreed-upon timelines.

It is the math department expectation that all students will write tests on the date set out by the classroom teacher. In the event of an illness, emergency, or other significant situation, an exception can be made, provided sufficient documentation is given to the classroom teacher. Please note that parental approval is not a legitimate reason for missing an evaluation. If an acceptable absence is known prior to the assessment date, alternate arrangements must be made with the classroom teacher in advance.

If this expectation is not met, the evaluation will be completed but may not contribute to the student's course marks.

Late and Missed Assignments - Student Roles and Responsibilities

Students are expected to:

- be responsible for providing evidence of their achievement of the overall expectations within the time frame specified by the teacher, and in a form approved by the teacher;
- understand that there will be consequences for not completing assignments for evaluation and/or for submitting those assignments late;
- use class time productively;
- in extenuating circumstances, request an extension from the teacher before the due date.

Mark deductions for late and missed assignments may apply to major assignments only.

References: **TVDSB Assessment & Evaluation Policy, September 2011; Growing Success - Assessment and Evaluation, and Reporting in Ontario Schools, 2010. Student Planner and School Web site**