Mathematics, Grade 12, Course Descriptions, 2007

Calculus and Vectors, Grade 12, University Preparation (MCV4U)
This course builds on students' previous experience with functions and their developing understanding of rates of change. Students will solve problems involving geometric and algebraic representations of vectors, and representations of lines and planes in three-dimensional space; broaden their understanding of rates of change to include the derivatives of polynomial, rational, exponential, and sinusoidal functions; and apply these concepts and skills to the modelling of real-world relationships. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended for students who plan to study mathematics in university and who may choose to pursue careers in fields such as physics and engineering.
Note: The new Advanced Functions can be taken concurrently with or can precede Calculus and Vectors.

Advanced Functions, Grade 12, University Preparation (MHF4U)
This course extends students' experience with functions. Students will investigate the properties of polynomial, rational, logarithmic, and trigonometric 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 who plan to study mathematics in university and for those wishing to consolidate their understanding of mathematics before proceeding to any one of a variety of university programs.
Prerequisite: Functions, Grade 11, University Preparation, or Mathematics for College Technology, Grade 12, College Preparation

Mathematics of Data Management, Grade 12, University Preparation (MDM4U)
This course broadens students' understanding of mathematics as it relates to managing data. Students will apply methods for organizing large amounts of information; solve problems involving probability and statistics; and carry out a culminating project that integrates statistical concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. Students planning to enter university programs in business, the social sciences, and the humanities will find this course of particular interest.
Prerequisite: Functions and Applications, Grade 11, University/College Preparation, or Functions, Grade 11, University Preparation

Mathematics for College Technology, Grade 12, College Preparation (MCT4C)
This course enables students to extend their knowledge of functions. Students will investigate and apply properties of polynomial, exponential, and trigonometric functions; continue to represent functions numerically, graphically, and algebraically; develop facility in simplifying expressions and solving equations; and solve problems that address applications of algebra, trigonometry, vectors, and geometry. Students will reason mathematically and communicate their thinking as they solve multi-step problems. This course prepares students for a variety of college technology programs.

Prerequisite: Functions and Applications, Grade 11, University/College Preparation

Foundations for College Mathematics, Grade 12, College Preparation (MAP 4C)
This course enables students to broaden their understanding of real-world applications of mathematics. Students will analyse data using statistical methods; solve problems involving applications of geometry and trigonometry; simplify expressions; and solve equations. Students will reason mathematically and communicate their thinking as they solve multi-step problems. This course prepares students for college programs in areas such as business, health sciences, and human services, and for certain skilled trades.
Prerequisite: Foundations for College Mathematics, Grade 11, College Preparation

Mathematics for Work and Everyday Life, Grade 12, Workplace Preparation (MEL4E)
This course enables students to broaden their understanding of mathematics as it is applied in the workplace and daily life. Students will investigate questions involving the use of statistics; apply the concept of probability to solve problems involving familiar situations; investigate accommodation costs and create household budgets; use proportional reasoning; estimate and measure; and apply geometric concepts to create designs. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.
Prerequisite: Mathematics for Work and Everyday Life, Grade 11, Workplace Preparation