

Mathematics

MPM1D - Principles of Mathematics, Gr. 9, Academic

This course enables students to develop understanding of mathematical concepts related to algebra, analytic geometry, and measurement and geometry through investigation, the effective use of technology, and abstract reasoning. Students will investigate relationships, which they will then generalize as equations of lines, and will determine the connections between different representations of a linear relation. They will also explore relationships that emerge from the measurement of three-dimensional figures and two-dimensional shapes. Students will reason mathematically and communicate their thinking as they solve multistep problems. Successful completion of this course prepares students for Principles of Mathematics, Grade 10, Academic (MPM2D1) or Foundations of Mathematics, Grade 10, Applied (MFM2P1). Learning through abstract reasoning is an important aspect of this course. Prerequisite: None

MFM1P - Foundations of Mathematics, Gr. 9, Applied

This course enables students to develop an understanding of mathematical concepts related to introductory algebra, proportional reasoning, and measurement and geometry through investigation, the effective use of technology, and hands-on activities. Students will investigate real-life examples to develop various representations of linear relations, and will determine the connections between the representations. They will also explore certain relationships that emerge from the measurement of three-dimensional figures and two-dimensional shapes. Students will consolidate their mathematical skills as they solve problems and communicate their thinking. Successful completion of this course prepares students for Foundations of Mathematics, Grade 10, Applied (MFM2P1). Learning through hands-on activities and the use of concrete examples is an important aspect of this course. Prerequisite: None

MPM2D - Principles of Mathematics, Gr. 10, Academic

This course enables students to broaden their understanding of relationships and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and abstract reasoning. Students will explore quadratic relationships and their applications; solve and apply linear systems; verify properties of geometric figures using analytic geometry; and investigate the trigonometry of right and acute triangles. Students will reason mathematically as they solve multistep problems. Prerequisite: Principles of Mathematics, Grade 9, Academic, or Principles of Mathematics, Pre-AP, Grade 9

MFM2P - Foundations of Mathematics, Gr. 10, Applied

This course enables students to consolidate their understanding of linear relations and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and hands-on activities. Students will develop and graph equations in analytic geometry; solve and apply linear systems, using real-life examples; and explore and interpret graphs of quadratic relations. Students will investigate similar triangles, the trigonometry of right-angled triangles, and the measurement of three-dimensional figures. Students will consolidate their mathematical skills as they solve problems and communicate their thinking. Prerequisite: Foundations of Mathematics, Grade 9, Applied or Principles of Mathematics, Grade 9, Academic

MCR3U - Functions, Gr. 11, University Prep.

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; investigate inverse functions; and develop facility in determining equivalent algebraic expressions. Students will reason mathematically and communicate their thinking as they solve multi-step problems. Prerequisite: Principles of Mathematics, or Principles of Mathematics, Grade 10 Academic NOTE: In grade 12, the new Advanced Functions should precede Calculus and Vectors but can be taken concurrently with Calculus and Vectors. It is in the student's best interest to take grade 12 Advanced Functions before grade 12 Calculus and Vectors. It may be advisable for students to consider taking grade 12 Advanced Functions in their third year of high school after completing MCR3U.

MCF3M - Functions and Applications, Gr. 11, University/College Prep.

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 modeling 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. Prerequisite: Principles of Mathematics, Grade 10, Academic, or Foundations of Mathematics, Grade 10, Applied

MBF3C - Foundations for College Mathematics, Gr. 11, College Prep.

This course enables students to broaden their understanding of mathematics as a problem-solving tool in the real world. Students will extend their understanding of quadratic relations; investigate situations involving exponential growth; solve problems involving compound interest; solve financial problems connected with vehicle ownership; develop their ability to reason by collecting, analyzing, and evaluating data involving one variable; connect probability and statistics; and solve problems in geometry and trigonometry. Students will consolidate their mathematical skills as they solve problems and communicate their thinking. Prerequisite: Foundations of Mathematics, Grade 10, Applied

MCV4U - Calculus and Vectors, Gr. 12, University Prep.

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 modeling 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. Prerequisite: MHF 4U1: Advanced Functions, Gr. 12, University Preparation or MHF4U: Advanced Functions, Gr. 12

*Note: The Advanced Functions should precede Calculus and Vectors but can be taken concurrently with Calculus and Vectors. It is in the student's best interest to take grade 12 Advanced Functions before grade 12 Calculus and Vectors. It may be advisable for students to consider taking grade 12 Advanced Functions in their third year of high school after completing MCR3U.

MHF4U - Advanced Functions, Gr. 12, University Prep.

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: MCR3U - Functions, Gr. 11, University Preparation, or MCT4C - Mathematics for College Technology, Gr. 12, College Preparation

MDM4U - Mathematics of Data Management, Gr. 12, University Prep.

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: MCF3M - Functions and Applications, Gr. 11, University/College Preparation, or MCR 3U - Functions, Gr. 11, University Preparation

MCT4C - Mathematics for College Technology, Gr. 12, College Prep.

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: MCF3M - Functions and Applications, Gr. 11, University/College Preparation

MAP4C - Foundations for College Mathematics, Gr. 12, College Prep.

This course enables students to broaden their understanding of real-world applications of mathematics. Students will analyze 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: MBF3C - Foundations for College Mathematics, Gr. 11, College Preparation