

Mathematics



MHF4U1

Advanced Functions, Grade 12, University Preparation

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*

MCV4U1

Calculus and Vectors, Grade 12, University Preparation

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.

Recommended preparation: *Advanced Functions, Grade 12 University Preparation.*

Note: *The new Advanced Functions course (MHF4U) must be taken prior to or concurrently with Calculus and Vectors (MCV4U).*

MBF3C1

Foundations for College Mathematics, Grade 11, College Preparation

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, as well as of measurement and geometry; investigate situations involving exponential growth; solve problems involving compound interest; solve financial problems connected with vehicle ownership; and develop their ability to reason by collecting, analysing, and evaluating data involving one and two variables. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

Prerequisite: *Foundations of Mathematics, Grade 10, Applied*

MAP4C1

Foundations for College Mathematics, Grade 12, College Preparation

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*

MFM1P1

Foundations of Mathematics, Grade 9, Applied

This course enables students to develop mathematical ideas and methods through exploration of applications, the effective use of technology, and extended experiences with hands-on activities. Students will investigate relationships of straight lines in analytic

geometry, solve problems involving the measurement of 3-dimensional objects and 2-dimensional figures, and apply key numeric and algebraic skills in problem solving. Students will also have opportunities to consolidate core skills and deepen their understanding of key mathematical concepts.

MFM2P1

Foundations of Mathematics, Grade 10, Applied

This course enables students to consolidate their understanding of key mathematical concepts through hands-on activities and to extend their problem-solving experiences in a variety of applications. Students will solve problems involving proportional reasoning and the trigonometry of right triangles; investigate applications of piecewise linear functions; solve and apply systems of linear functions; solve and apply systems of linear equations; and solve problems involving quadratic functions. The effective use of technology in learning and solving problems will be a focus of the course.

Prerequisite: *Foundations of Mathematics, Grade 9, Applied*

MCR3U1

Functions, Grade 11, University Preparation

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.

Prerequisite: *Principles of Mathematics, Grade 10, Academic*

MCF3M1

Functions and Applications, Grade 11, University/College Preparation

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 financial and trigonometric 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*

MAT1L1

Mathematics, Grade 9, Locally Developed Compulsory Credit Course

This course emphasizes further development of mathematical knowledge and skills to prepare students for success in their everyday lives, in the workplace, in the Grade 10 Locally Developed Compulsory Credit course and in the Mathematics Grade 11 and Grade 12 Workplace Preparation courses. The course is organized by three strands related to money sense, measurement, and proportional reasoning. In all strands, the focus is on developing and consolidating key foundational mathematical concepts and skills by solving authentic, everyday problems. Students have opportunities to further develop their mathematical literacy and problem-solving skills and to continue developing their skills in reading, writing, and oral language through relevant and practical math activities.

Mathematics

MAT2L1

Mathematics, Grade 10 Locally Developed Compulsory Credit Course

This course emphasizes the extension of mathematical knowledge and skills to prepare students for success in their everyday lives, in the workplace, and in the Mathematics Grade 11 and Grade 12 Workplace Preparation courses. This course is organized by three strands related to money sense, measurement, and proportional reasoning. In all strands, the focus is on strengthening and extending key foundational mathematical concepts and skills by solving authentic, everyday problems. Students have opportunities to extend their mathematical literacy and problem-solving skills and to continue developing their skills in reading, writing and oral language through relevant and practical math activities.

Prerequisite: *A grade 9 Mathematics credit*

MCT4C1

Mathematics for College Technology, Grade 12, College Preparation

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*

MEL3E1

Mathematics for Work & Everyday Life, Grade 11, Workplace Preparation

This course enables students to broaden their understanding of mathematics

as it is applied in the workplace and daily life. Students will solve problems associated with earning money, paying taxes, and making purchases; apply calculations of simple and compound interest in saving, investing, and borrowing; and calculate the costs of transportation and travel in a variety of situations. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

Prerequisite: *Principles of Mathematics, Grade 9, Academic, or Foundations of Mathematics, Grade 9, Applied, or a ministry-approved locally developed Grade 10 mathematics course*

MEL4E1

Mathematics for Work & Everyday Life, Grade 12, Workplace Preparation

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*

MDM4U1

Mathematics of Data Management, Grade 12, University Preparation

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

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

MPM1D1

Principles of Mathematics, Grade 9 Academic

This course enables students to develop generalizations of mathematical ideas and methods through the exploration of applications, the effective use of technology, and abstract reasoning. Students will investigate relationships

to develop equations of straight lines in analytic and surface area of objects in measurement, and apply extended algebraic skills in problem solving. Students will engage in abstract extensions of core learning that will deepen their mathematical knowledge and enrich their understanding.

MPM2D1

Principles of Mathematics, Grade 10, Academic

This course enable students to broaden their understanding of relations, extend their skills in multi-step problem solving, and continue to develop their abilities in abstract reasoning. Students will pursue investigations of quadratic

functions and their applications; solve and apply linear systems; solve multi-step problems in analytic geometry to verify properties of geometric figures; investigate the trigonometry of right and acute triangles; and develop supporting algebraic skills.

Prerequisite: Principles of Mathematics, Grade 9, Academic. NOTE: Students who have completed Foundations of Mathematics Grade 9, Applied (MFM1P) will need to take a transfer course to take MPM2D

Native Languages and Native Studies

NATIVE LANGUAGES

LNOB01 - Ojibwe Native Languages, Level 2, Open

This course will enable students to experience the unique respect for life that permeates Native languages and cultures. Students will expand their vocabulary and knowledge of phrases and expressions, using them in simple dialogues, narrative writing, grammatical constructions, and reading, and to exchange information electronically.

Prerequisite: At least four years of study of a Native language in elementary school, successful completion Level 1, Open, or demonstrated proficiency.

LNOCO - Ojibwe Native Languages, Level 3, Open

This course will provide students an opportunity to expand their knowledge

of a Native language and of Native philosophy, spirituality, and values, and to enhance their identity and self-worth. Students will communicate by using a variety of phrases and expressions, create short conversations, skits, stories, and narratives, use information technology, and develop and awareness of the structural and functional workings of a Native language.

Prerequisite: Native Languages, Level 2, Open, or demonstrated proficiency

LNODO - Ojibwe Native Languages, Level 4, Open

This course will provide students with opportunities to further develop their knowledge of a Native language and of Native philosophy, spirituality, and values, and to enhance their sense of identity and self-worth. Students will increase their vocabulary and improve their facility in using idioms, and will use the Native language to analyze literature, discuss various issues that

affect their local community, and exchange information electronically.

Prerequisite: Native Languages, Level 3, Open, or demonstrated proficiency

LNOE01 - Ojibwe Native Languages, Level 5, Open

This course provides students with opportunities to increase their knowledge of a Native language and culture. Students will increase their vocabulary; use complex language patterns and formal language; and use the Native language to analyze literature, discuss issues (e.g., economic development, personal development), and study Native customs, traditions, and world views. They will examine differences in dialects while communicating with others electronically.

Prerequisite: Native Languages, Level 4, Open, or demonstrated proficiency

Native Studies continued over page...