Prerequisite Chart for Mathematics

Grade 12U
Calculus and Vectors
MCV4U1

Note: The new Advanced Functions course can be taken concurrently with or can precede Calculus and Vectors.

Grade 12U
Advanced
Functions
MHF4U1

Grade 11 U
Functions

MCR3U1

Grade 12U
Math of Data Management
MDM4U1
(offered alternate years)

Grade 9
Principles
Academic
MPM1D1

Grade 10
Principles
Academic
MPM2D1

T

Grade 11 M
Functions and Applications
MCF3M1

Grade 9
Foundations of
Applied
MFM1P1

Grade 10
Foundations of
Applied
MFM2P1

Grade 11 C
Foundations for College Math
MBF3C1

Grade 12C
Foundations for College Math
MAP4C1

Grade 9
L.D.C.C.
MAT 1L1

Grade 10
L.D.C.C.
MAT 2L1

Grade 11
Math for Work
and Everyday Life
MEL3E1

Grade 12
Math for Work
and Everyday Life
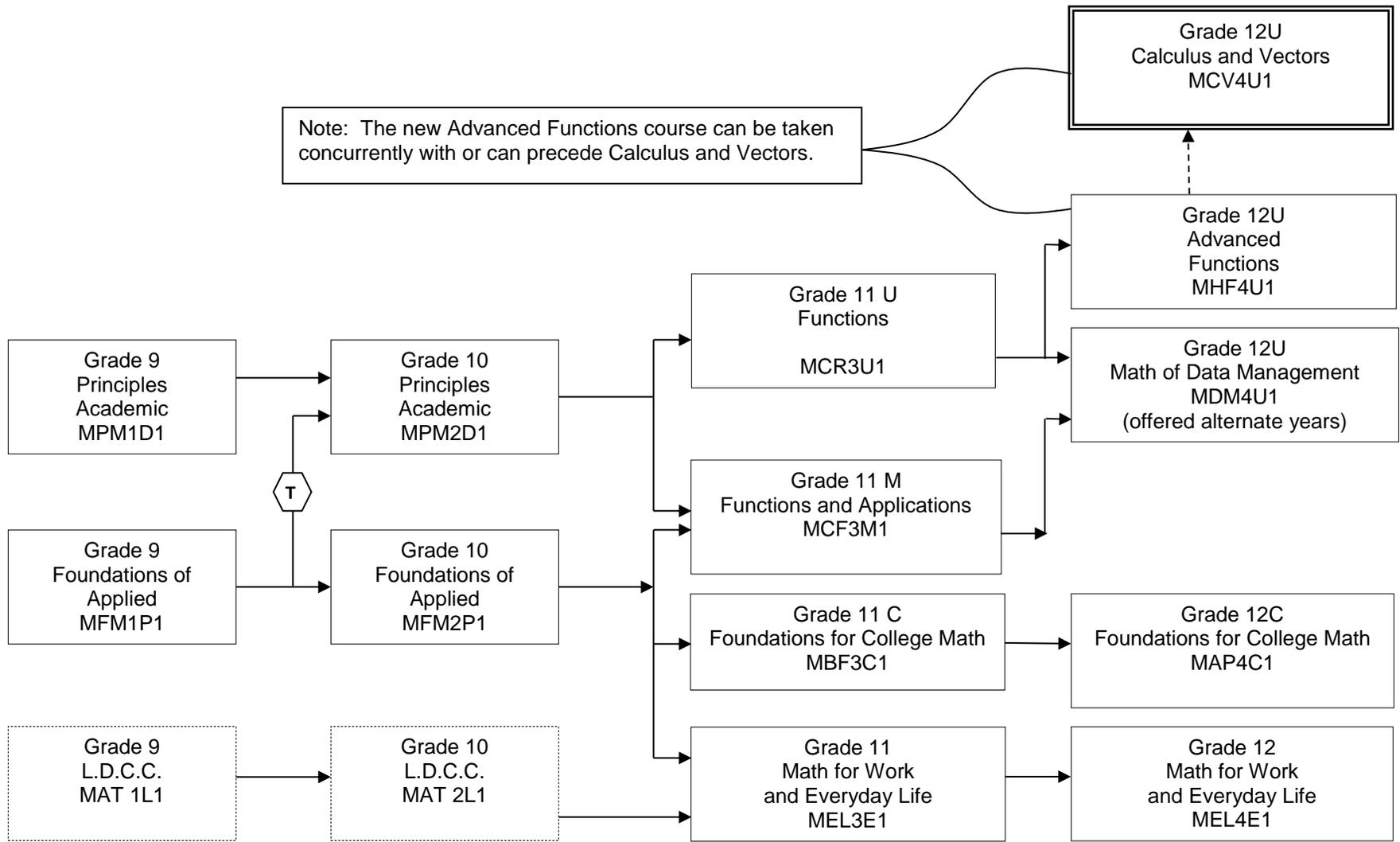MEL4E1

This chart maps out all the courses in the discipline and shows the links between courses and the minimum requirements for them. It does not attempt to depict all possible movements from course to course.

T – Transfer Course
L.D.C.C. – Locally Developed Credit Course

MATHEMATICS

Principles of Mathematics   MPM 1D1 (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 (MPM2D) or Foundations of Mathematics, Grade 10, Applied (MFM2P). Learning through abstract reasoning is an important aspect of this course.

Foundations of Mathematics   MFM 1P1 (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 (MFM 2P1). (Note: students who wish to take Principles of Mathematics, Grade 10, Academic (MPM 2D1) after completing this course will need to take a transfer course at summer school.) Learning through hands-on activities and the use of concrete examples is an important aspect of this course.

Mathematics   MAT 1L1 (LOCALLY DEVELOPED)
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 (LDCC) Locally Developed course, 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 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.

Principles of Mathematics   MPM 2D1 (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 relations 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 and communicate their thinking as they solve multistep problems.
Prerequisite: MPM 1D1 (Level 3 strongly recommended)

Foundations of Mathematics   MFM 2P1 (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 triangles, and the measurement of three-dimensional figures. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.
Prerequisite: MFM 1P1

Mathematics   MAT 2L1 (LOCALLY DEVELOPED)
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: MAT 1L1

Functions   MCR 3U1 (UNIVERSITY)
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: MPM 2D1 (Level 3 strongly recommended)

Functions and Applications   MCF 3M1 (UNIVERSITY/COLLEGE)
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: MFM 2P1 (Level 4 Recommended) or MPM 2D1 (Offered in 2019-2020 Semester1)

Foundations for College Mathematics   MBF 3C1 (COLLEGE)
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, analyzing, and evaluating data involving one and two variables. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.
Prerequisite: MFM 2P1 or MPM 2D1

Mathematics for Work and Everyday Life   MEL 3E1 (WORKPLACE)
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: MAT 2L1, MPM 1D1, MFM 1P1

Mathematics for Work and Everyday Life   MEL 4E1 (WORKPLACE)
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, create household budgets, and prepare a personal income tax return; 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: MEL 3E1

Foundations for College Mathematics   MAP 4C1 (COLLEGE)
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; apply measurement in designing and constructing physical models; solve financial problems connected with home ownership; 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: MBF 3C1 or MCF 3M1

Advanced Functions   MHF 4U1 (UNIVERSITY)

This course extends on 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: MCR 3U1 or MCT4C1 (Level 3 strongly recommended for both courses)

Calculus and Vectors   MCV 4U1 (UNIVERSITY)

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. **Note**: The new Advanced Functions can be taken concurrently with or can precede Calculus and Vectors.
Prerequisite: MHF 4U1 (Level 3 strongly recommended)

Mathematics of Data Management   MDM 4U1 (**UNIVERSITY)**

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. (Possibly offered through e-learning for 2019-2020 – semester 2)
Prerequisite: MCR 3U1 or MCF 3M1