# Bluevale Collegiate Mathematics Department
## *Grade 12 Course Descriptions*

### MEL 4EI – Grade 12 Workplace
***Mathematics for Work & Everyday Life***

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 3EI – Grade 11 Workplace: *Mathematics for Work & Everyday Life*

### MAP 4CI – Grade 12 College
***Foundations for College Mathematics***

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; solve financial problems connected with annuities, budgets, and renting or owning accommodation; 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.

**Prerequisite:**
MBF 3CI – Grade 11 College: *Foundations for College Mathematics*

### MCT 4CI – Grade 12 College
***Mathematics for College Technology***

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:**
MCF 3MI – Grade 11 University/College: *Functions & Applications*

## MDM 4UI – Grade 12 University
***Mathematics of Data Management***

This course broadens students' understanding of mathematics as it relates to managing data. Students will apply methods for organizing and analysing large amounts of information; solve problems involving probability and statistics; and carry out a culminating investigation that integrates statistical concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. Students will conduct a major research project as part of this course. Students planning to enter university programs in business, the social sciences, and the humanities will find this course of particular interest.

**Prerequisite:**
MCF 3MI – Grade 11 University/College: *Functions & Applications*
*OR*
MCR 3UI – Grade 11 University: *Functions*

## MHF 4UI – Grade 12 University
***Advanced Functions***

This course extends students' experience with functions. Students will investigate the properties of polynomial, rational, logarithmic, and trigonometric functions; develop techniques for combining 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 taking the Calculus and Vectors course as a prerequisite for a university program and for those wishing to consolidate their understanding of mathematics before proceeding to any one of a variety of university programs.

**Prerequisite:**
MCR 3UI – Grade 11 University: *Functions*
*OR*
MCT 4CI – Grade 12 College: *Mathematics for College Technology*

## MCV 4UI – Grade 12 University
***Calculus & Vectors***

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, sinusoidal, exponential, rational, and radical 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 choose to pursue careers in fields such as science, engineering, economics, and some areas of business, including those students who will be required to take a university-level calculus, linear algebra, or physics course*.

**Prerequisite or Co-requisite:**
MHF 4UI – Grade 12 University: *Advanced Functions*

**BCI Math Department Recommendation:**
Although it is possible to take this course concurrently with Grade 12 University: *Advanced Functions*, it is **highly recommended** that a student completes the *Advanced Functions* course first.