

Henry Street High School

MCV 4U1

Calculus and Vectors, Grade 12, University Preparation

COURSE OUTLINE

COURSE DESCRIPTION

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 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.

UNITS OF STUDY

UNIT 1 – Introduction to Calculus

UNIT 2 – Derivatives

UNIT 3 – Derivatives and Their Applications

UNIT 4 – Curve Sketching

UNIT 5 – Derivatives of Exponential and Trigonometric Functions

UNIT 6 – Introduction to Vectors

UNIT 7 – Applications of Vectors

UNIT 8 – Points, Lines and Planes

ASSESSMENT AND EVALUATION

ASSESSMENT STRATEGIES

- ❖ Unit Tests
- ❖ Quizzes
- ❖ Journals
- ❖ Investigations
- ❖ Inquiries
- ❖ Projects
- ❖ Assignments
- ❖ Final Summary Booklet
- ❖ Final Examination

EVALUATION

- ❖ Termwork 70%
- ❖ Final Summative Evaluation 30%

OTHER INFORMATION

CLASS REQUIREMENTS

- ❖ Textbook: Calculus and Vectors, Nelson
- ❖ Equipment: Scientific calculator, 3-ring binder, lined paper, graph paper, pencil, coloured pens or pencils, eraser, ruler, geometry set