

# COURSE STATEMENT

## MCV4U

### LAMBTON CENTRAL COLLEGIATE AND VOCATIONAL INSTITUTE

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Welcome to **Grade 12 Calculus and Vectors**. This is a summary sheet for parents and students which outlines our course evaluation and expectations.

**TEXT:** *McGraw-Hill Ryerson Calculus & Vectors 12*

**Course Name:** Grade 12 Calculus and Vectors

**Course Code:** MCV 4U

**Credit Value:** 1 credit

**Ministry Document:** The Ontario Curriculum Grades 11 and 12, Mathematics, 2007

**Development Date:** June, 2007

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

#### **Mission Statement:**

Teachers at LCCVI are dedicated to providing the following:

- ✓ access for all students
- ✓ a safe learning environment
- ✓ quality educational opportunities
- ✓ high professional standards.

#### **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 polynomial, sinusoidal, exponential, rational, and radical 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.

#### **Overall and Specific Curriculum Expectations:**

Refer to the Ministry of Education document entitled "The Ontario Curriculum Grades 11 and 12, Mathematics, 2007 Revised" which is available in the main office, from your teacher, or on the Ministry of Education website (<http://www.edu.gov.on.ca/eng/curriculum/secondary/subjects.html>)

## Course Content Outline:

### **A. Rate of Change**

- ♦ Make connections between average rate of change and instantaneous rate of change
- ♦ Graph the derivatives of polynomial, sinusoidal, and exponential functions
- ♦ Derive polynomial, sinusoidal, exponential, rational, and radical functions, and simple combinations of functions; and solve related problems

### **B. Derivatives and their Applications**

- ♦ Sketch curves using key features of a function and its first and second derivatives
- ♦ Solve problems, including optimization problems

### **C. Geometry and Algebra of Vectors**

- ♦ Represent vectors in two-space and three-space algebraically and geometrically
- ♦ Perform operations on vectors to solve problems
- ♦ Distinguish between the geometric representations of a single linear equation or a system of two linear equations in two-space and three-space
- ♦ Determine different geometric configurations of lines and planes in three-space
- ♦ Represent lines and planes using scalar, vector, and parametric equations
- ♦ Solve problems involving distances and intersections

## Assessment and Evaluation Strategies:

There are four achievement categories of knowledge and skills that encompass all the curriculum expectations in the Ontario Curriculum for **MCV4U**. The four categories and their value for the term are as follows:

<b>Knowledge</b>	<b>30%</b>
<b>Thinking</b>	<b>20%</b>
<b>Communication</b>	<b>20%</b>
<b>Application</b>	<b>30%</b>

The breakdown of your mark will be based on your level of achievement as follows:

### **Term Work – 70%**

The above achievement categories will be used to evaluate tests, quizzes, assignments, etc. as part of your term mark.

### **Final Examination / Culminating Activity – 30%**

All students must participate in the culminating activity sometime during the last two weeks of the semester, where applicable, and / or write a final examination based on the entire semester's work during the end of semester exam period. There are no exemptions for this exam.

## Learning Skills

Provincial Report Cards will be marked with each student's performance in the six Learning Skills areas:

1. Responsibility
2. Organization
3. Independent Work
4. Collaboration
5. Initiative
6. Self-Regulation

These Learning Skills will be assessed regularly by your teacher. They are an important statistic to understand how well students perform in the class. These are not considered in the determination of the final grade. For each of the Learning Skills one of the following achievement letters will be given:

**E = Excellent**

**G = Good**

**S = Satisfactory**

**N = Needs Improvement**

## **ATTENDANCE**

Regular attendance is vital to the process of learning. When the process and content of learning is disrupted by irregular attendance, both the individual and his/her classmates suffer a loss of experience that cannot be entirely regained. Students who miss class will suffer in the process because their participation and achievement cannot be fully assessed. Students are expected to complete any missed assignments or assessment items, such as a quiz or test, due to absence.

## **LATE POLICY**

The staff and students of LCCVI recognize that deadlines need to be in place to help students develop time management skills and strategies. Where in the teacher's professional judgment it is appropriate to do so, a number of strategies may be used to help prevent and/or address late and missed assignments. If the assignment is still handed in after the due date, the teacher may deduct marks for a late assignment.

Students are expected to submit all assignments within the time frame specified by the teacher. Teachers will consider extenuating circumstances when assignments are late. If an assignment is late, **10% MAY** be deducted per school day, up to a maximum of **50%**. Once assignments have been returned to students, any late submissions **MAY** receive a mark of zero.

## **CELLPHONE USE**

Cellphones are to be off and away during instructional time.

Cellphones are not to be used as calculators

Cellphones can be used for music with headphones during independent work time.

Other uses require permission from the teacher.

## **ACADEMIC HONESTY**

### **Consequences for Academic Dishonesty on Assignments:**

Professional judgment of the teacher is taken into account to determine the degree of academic dishonesty and appropriate consequences.

**Grade 12** – A mark of zero will be assigned.

There will be no opportunity for the assignment to be re-evaluated.

Note: Consequences may vary depending on the grade and level of a course.

### **Consequences for Academic Dishonesty on Tests:**

1. Teacher has a conversation with the student about the incident.
2. If cheating has been determined, the student is assigned a mark of zero.
3. Parents are informed if student is under 18 years old.
4. In Grades 9 to 12, administration is informed if situation is not resolved.

### **Consequences for Academic Dishonesty on Exams:**

1. If cheating is suspected during the exam, student is allowed to complete exam.
2. If cheating has been determined during or after the exam there will be a conference involving administration, teacher and the student. A mark of zero will be assigned.
3. Parents are informed if student is under 18 years old.

**Appeals Process:** Appeals will be requested through the teacher to the administration if the situation is not resolved.