



Grade 12 Calculus and Vectors

Course Textbook: Calculus and Vectors (Nelson)

Course Code: MCV4U

Rationale:

This course builds on students' experience with functions and introduces the basic concepts and skills of calculus. Students will investigate and apply the properties of polynomial, exponential, and logarithmic functions; broaden their understanding of the mathematics associated with rates of change; and develop facility with the concepts and skills of differential calculus as applied to polynomial, rational, exponential, trigonometric and logarithmic functions. Students will apply these skills to problem solving in a range of applications. In addition, students will be introduced to the geometry and algebra of vectors. They will learn to represent and perform operations on vectors algebraically, geometrically and via applications. They will learn to represent lines in planes and three-space using vector, parametric and symmetric equations and solve related problems.

Prerequisite: Advanced Functions (MHF4U)

The Ontario Curriculum, Grade 12: Mathematics, 2007

Course Overview:

Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Limits, Derivatives	Related Rates, Derivatives of other functions	Optimization, Curve Sketching	Vectors	Lines and Planes
Chapters 1 – 2	Chapters 3, 5	Chapters 3 - 4	Chapters 6 - 7	Chapters 8 - 9

Evaluation:

The Mathematics Department at Richmond Hill High School recognizes that assessment is a daily procedure. Teachers will monitor the learning skills component of the Provincial Report Card on a regular basis. These skills -- independence, teamwork, organization, work habits and initiative – will be assessed throughout the course. The students' final percentage grade will be calculated using the following guide:

Category	Weight
Knowledge	30%
Application	25%
Thinking / Problem Solving	10%
Communication	5%
Final Exam	30%
Total	100%

Attendance/Lates:

Students are expected to attend class each day. A lot of material is covered each period and it can be difficult to catch up if a student has repeated absences. Furthermore, the teacher establishes expectations with respect to the topics and their level of difficulty during class time. It is the student's responsibility to catch up on lessons and homework that have been missed. Ask your classmates for lessons and homework and the teacher can provide you with any handouts. Please also consult the math department's website at www.rhsmath.ca and follow the appropriate links.

If you know that you will be absent, you must let your teacher know **before hand**, especially if your absence is on the day of a quiz or test (see below).

Tests/ Quizzes:

Tests are based on a unit of work and are always announced in advance. Quizzes may or may not be announced in advance. They cover only recently assigned work.

If you are going to be legitimately away on the day that a quiz or test is written **the student** must make arrangements with the teacher prior to the day of the absence. Failure to do so may result in a mark of **zero**. Please note that missing a quiz or test due to an appointment or field trip and informing the teacher after the fact is unacceptable.

If you are away due to unforeseen illness, you must bring a note, signed by a parent or guardian, indicating that they are aware that you have missed a math test and the reason for your absence.

This is **different from the note that you provide for the office and should be addressed to me**. This note is to be received within 3 school days after your return to school. Again, failure to do so may result in a mark of zero. In the event of a legitimate absence due to illness, your test mark may be replaced by the final exam mark. You will need to speak to your teacher immediately upon your return.

Extra Help:

Students should be aware that extra help is available. It is not necessary to make an appointment in advance but you may do so if you wish to be sure that I do not have a conflicting appointment. If I am not available, please use the extra help room located in room 2028. This room is open everyday from 8:00am – 8:40am and 3:30pm – 4:20pm for extra help where there is always a teacher and / or student teaching assistants.

Website: <http://rhsmath.ca>

A course website is available for students to get the following information if needed:

- Upcoming dates to remember (Formative or Summative assessments)
- Marks
- Course outline
- Homework and lesson plans
- Some selected homework solutions
- Contact information to your teacher