York Region District School Board

BUR OAK SECONDARY SCHOOL

Mathematics Department

Course Outline

COURSE:	Grade 12 Calculus and Vectors Academic Mathematics
CODE:	MCV4U1
TEXTBOOK:	Calculus and Vectors 12, McGraw-Hill Ryerson ($90.00)
CREDIT VALUE:	One
PREREQUISITES:	MHF4U1
DEPARTMENT HEAD:	B. Merchant
COURSE TEACHERS:	Mr. Bulos, Mr. Fong. Mr. Hackshaw, Mr. Muzsi

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 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. *http://www.edu.gov.on.ca/eng/curriculum/secondary/math1112currb.pdf*

COURSE EXPECTATIONS:

This course is based on curriculum expectations found in the Ontario Curriculum: *Grades 11 and 12 Mathematics 2005 (Revised)*. A copy of this document is available in the Math Office as well as on-line at *http://www.edu.gov.on.ca/eng/curriculum/secondary/math1112currb.pdf*

COURSE TOPICS:

1. Limits
2. Derivative Rules
3. Curve Sketching and Applications of Derivatives
4. Geometric and Cartesian Vectors
5. Lines and Planes

ASSESSMENT AND EVALUATION:

Assessment ***for/as*** Learning may include, but is not limited to the following: diagnostic assessments, quizzes, conversations, observations, exit cards, cooperative learning strategies. Assessment ***of*** Learning may include, but is not limited to the following: critical thinking problem sets, performance tasks, culminating projects, presentations, assignments, tests.

Knowledge & Understanding	25%
Application	20%
Communication	10%
Thinking & Inquiry	15%
Final Exam	30%

Refer to the *Bur Oak Secondary School Assessment, Evaluation and Communication Policy*

STUDENT WELL BEING:

The Mathematics Department is committed to providing programming which accommodates students of all backgrounds. The department actively promotes classroom environments in which deep learning occurs, and in which the mental health and well-being of students is a priority.

- Teachers as "lead learners" will pay consistent attention to equity, inclusivity and mental health, while overall well-being will be at the forefront of modern learning[1].
- The role of students:
    - Honouring principles of differentiation in instruction, assessment and evaluation.
    - Student voice and involvement in the assessment process with emphasis on equity and inclusivity[2].
    - Student ownership of learning, using a model of gradual release of responsibility, with awareness of student mental health and well-being[3] throughout.

[1]Modern Learning is authentic and relevant deep learning that enables learners to create, connect, communicate, and share their learning with the world and be future ready.

[2]Equity and inclusive education:

- is a foundation of excellence;
- meets individual needs;
- identifies and eliminates barriers;
- promotes a sense of belonging;
- involves the broad community;
- builds on and enhances previous and existing initiatives;
- is demonstrated throughout the system.

[3]Well-being is a positive sense of self, spirit and belonging that we feel when our cognitive, emotional, social and physical needs are being met. Healthy development of the mind, body and spirit is contingent on balance and interconnectedness.

NOTES:

It is really important to us that you learn the material and that you enjoy and do well in the course. Please make every effort to keep up with the work, to be present and on time for class, and to participate every day.

Please bring a pencil, an eraser, a scientific calculator, a ruler, a protractor, a binder with lined paper and graph paper, and a textbook to class with you every day.

You will get homework on a regular basis. If you are having trouble with the homework or with ideas covered in class, please see your teacher for help.

If you know that you are going to be away on the day of an assessment, you must make arrangements prior to the assessment. If you are ill on the day of an assessment, one of your parents must leave a message with your teacher (905-202-1234) and provide verification of illness. You should be prepared to complete the assessment on the day you return.

Enjoy!