

MATHEMATICS: MCV4U1

Calculus and Vectors

COURSE OUTLINE :

St. Mary's High School
Spring 2017
Mr. Sadler

Credit Value: 1

Prerequisite: MHF4U

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 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.

[Course selection book]

HOW THIS COURSE SUPPORTS THE CATHOLIC GRADUATE EXPECTATIONS

This course enables students to develop a confident and positive sense of self. Within the setting of a supportive and caring classroom community, the dignity and value of each student is respected and affirmed. Through their personal growth in reason, critical thinking, and communication, students come to appreciate their mathematical ability as a God-given gift. By sharing their abilities, students contribute to the good of others, in service to the classroom and school community.

Text: Calculus and Vectors 12. Erdman, Wayne et al. McGraw-Hill Ryerson, 2008.

Rules:

1. Be on time.
2. Be prepared - pen, pencil, notebook and text(s) etc.
3. Assigned work is due on assigned date.
4. No cell phones, iPods in class.
5. If you miss a class, it is **your** responsibility to:
 - a) obtain any work, which was missed.
 - b) determine what material was submitted for evaluation and submit it.
 - c) obtain all handouts and assignments.
6. **Show respect at ALL TIMES.**
 - a) Do NOT pack up early
 - b) Do NOT line up at the door
 - c) Obey the seating plan that you are given

Expectations

1. Come prepared to each class with paper, pencils, calculator and textbook on desk when period begins
2. Homework will be assigned on a nightly basis.
3. Show respect to whomever is speaking at **all** times.
4. Learning is an active process! Expect to be called on during class on a regular basis.
5. If you have a question, please raise your hand! Chances are, if you have a question, there are several others with the same question but are too shy to speak up.
6. You will learn something new everyday in my class!

Attendance:

The Ontario Ministry of Education and Training Document, Ontario Secondary Schools: Grades 9 to 12, states that “regular attendance at school is critical for the student’s learning and achievement of course expectations.”

Evaluation Criteria

As a student in MCV4U1, it is important that you fully understand how your final mark will be determined. The purpose of this handout is to let you know what is expected of you in this course and specifically how you will arrive at your final mark.

Evaluation:

Knowledge/Understanding	30%
Applications	10%
Thinking/Inquiry/Problem Solving	25 %
Communication	5 %
Vectors Midterm	10 %
Calculus Midterm.	20 %

Tests

A class test will be given after every unit, perhaps twice in a unit if it is a complex one. Reasonable advance notice will be given to the students for all major tests. Each unit is approximately two weeks long and all tests will be on **Tuesday** this year.

Assessments and evaluations are taken very seriously in this class. It is extremely important that all students be present on the day of a test. Attempts will be made to avoid conflicts with test dates. However, if a student knows that it is impossible to be present for a test, he/she must make arrangements with Mr. Sadler, to write their assessment prior to the test date.

Late Assignment Policy

All assignments are due on the date assigned. There will be eight assignments this year (one per unit) due on the same day as the test. Late assignments will be accepted with a **penalty of 10% per day** up to a maximum of **five days**. Assignments will no longer be accepted once solutions are posted on the website or assignments are returned to students.

Extra Help

Extra help is available daily at lunch and before school and will be exclusively Monday nights after school upon request (late taxis are available).

Classroom Communication

Homework will be assigned and checked on a nightly basis. Participation and professionalism in all classroom activities are strongly encouraged throughout the semester. Students will receive marks based on classroom co-operation and dedication to the subject matter. General articulation of knowledge, understanding and problem solving methods are considered in this mark.

Supplies

Students will require a three-ring binder, 5 dividers, reinforcements, a scientific calculator, and graph paper (1/4" or 5-6mm squares) for this course.

Marks

Your performance on assigned tasks will be made available to you periodically. It is your responsibility to check these updates and inform the teacher if there are any discrepancies.

Course Outline

Unit	Topic	Textbook
1	Rates of Change	Ch. 1
2	Intro to Calculus and Geometric Vectors	Ch. 6
3	Cartesian Vectors	Ch. 7
4	Lines and Planes	Ch. 8
5	Derivatives	Ch. 2
6	Curve Sketching	Ch. 3
7	Derivatives of Sinusoidal Functions	Ch. 4
8	Exponential and Logarithmic Functions	Ch. 5
9	Advanced Topics in Calculus	--

Web Page

There is a course webpage for MCV4U1 which will contain handouts that have been given in the course, assignments, old copies of tests, assigned homework, information and links that will be useful for the course. The website is <http://www.mrsadler.net> and students are encouraged to check in on a regular basis. Mr. Sadler can be contacted at the school at 376-4278. His email address is mr.sadler@gmail.com.

Parent/Guardian Information Form for MCV4U

Hello, my name is Mr. Sadler and I will be teaching your son/daughter Calculus this year. Just a few facts about the course:

- 1) There will be a test and an assignment due on every other **Tuesday** of the semester. Assignments will have a **late penalty of 10% per day** if not submitted at the beginning of class.
- 2) Please expect between **60 and 90 minutes of homework each night** in this course. The reason that I give homework in this course is for three reasons: a) I teach the entire 75 minutes of the lesson b) practice time is needed for math...it is my job to ensure that your son/daughter understands the lesson when they leave my class, but it is your child's responsibility to make sure that the concepts are remembered; practice reinforces the concepts explained in class, and c) problem solving – there should be some questions that the students get to try before teacher assistance. At the beginning of each class we will take up homework solutions from the night before, but I want the students to at least struggle (a little) with the questions before the solutions are presented. Homework will be checked on a daily basis in this course.
- 3) My contacts are by email mr.sadler@gmail.com and phone **(519) 376-4278** (the school's number). If your son/daughter is having difficulty with homework please feel free to email me and I can clarify the questions. My kids go to bed at about 7:00pm, so my email time is about **7:00-9:00** each night.
- 4) Extra help is available daily at lunch and after school upon request.

Student Name: _____

Student's Signature: _____

Parent/Guardian Signature: _____

Best Way To Contact Parent/Guardian: (phone/email/etc):

- 5) For a video introducing myself, please either go to <http://www.mrsadler.net> to find the video or directly at <https://www.youtube.com/watch?v=Mf9DjSI5r-Q&t=342s>

Please check any of the below:

_____ - I wish to be contacted when my child receives a mark less than _____ on a test/assignment.

_____ - I wish to be contacted within the first week to discuss the semester

_____ - I wish to be contacted when my child does not do homework on a regular basis

Any other comments/information that I should know about your child please list below: