Calculus 12 Mr. Sivertson

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 Welcome to Calculus 12. This course is intended to introduce the concepts of differentiation and integration. Derivatives find the rate of change of a function at a given point. Integrals find the accumulation of values of a function over a range. These two techniques are used in a wide variety of areas including: Business, Electronics, Engineering, Medicine, Research Analytics, and Meteorology.

The topics we will be covering this semester are:

* Functions, Graphs, and Limits
	+ Functions
	+ Limits
	+ Continuity
* Differentiation
	+ The Derivative
	+ Product, Quotient, and Chain Rules
	+ Implicit Differentiation
	+ Trigonometric Functions
	+ Exponential Functions
	+ Logarithmic Functions
* Applications of the Derivative
	+ Optimization Problems
	+ Curve Sketching
	+ Optimization Problems
	+ Related Rates
* Integration
	+ Antiderivatives and Indefinite Integrals
	+ Integration by Substitution
	+ Integration by Parts
	+ Riemann Sums
	+ The Definite Integral
	+ Fundamental Theorem of Calculus
	+ Area Under a Curve
* Applications of Integration
	+ Average Value
	+ Area Between Curves
	+ Volumes of Solids
	+ Differential Equations
	+ Exponential Growth and Decay

 The material will be learned through classroom discussion, classroom examples, workbook practice, and classroom assignments. Your mark will be determined approximately by Classroom Assessment (100%).

The purpose of this course is to introduce some new concepts that many students must study in college or university. These courses can be challenging and having some prior knowledge can help reduce the stress that many students experience in first year post-secondary institutions. Assessment of your knowledge will occur through written work and teacher observations.

Your final mark will be given as a percentage, with the following provincially mandated letter grade:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A | B | C+ | C | C- | I/F |
| 100% - 86% | 85% - 73% | 72% - 67% | 66% - 60% | 59% - 50% | 49% - 0% |

 It is your responsibility to make up any missed work, be sure to get notes from a classmate. I record what was accomplished in class on the Calculus 12 blog on my website. On the rare occasion that you miss a test, you will be expected to write the test on the next day that you attend class. There will be lots of time given in class to do assignments, but most people will not be able to complete everything in class, so be prepared to do some Math work each night. Extra help is available, from me in room 217 most lunch periods and before and after school if arranged.

 It is expected that you arrive to class on time, prepared to work, with all necessary supplies: a Brief Calculus textbook, a notebook, notepaper, graph paper, pen, pencil, eraser, ruler, and scientific calculator (no smart phones please).

To be successful in this course please follow the following guidelines:

* Cell phones should be off and away. Cell phones are an excellent resource for many workplace situations. However, they are also an incredible distraction for many people. The benefits of having a cell phone are negated by its misuse, therefore no phones are allowed in class.
* Do not plagiarize another student’s work. Plagiarism is the act of presenting someone else’s work as if it were your own. This class is about learning how to think. If you simply copy another student’s assignment you will not have learned the material and will most likely do poorly on tests.
* Come to all classes on time, pay attention, and ask questions. You’re here to learn. If you are having trouble following the lesson, ask me to repeat the idea or to do another example. I want you to be successful.
* Complete and hand in all assignments. Sometimes students finish part of an assignment or neglect to hand in an assignment. Not only does this affect your mark directly but you also miss out on feedback that I can give you on your assignment. As well, you will not be allowed to do corrections on your test.