Instructor

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Availability

Monday 10:00 am – 2:00 pm 5:00 pm – 9:00 pm
Other times by email anchan@sd43.bc.ca

General Introduction

Calculus 12 is designed for those who are planning to pursue post secondary studies in sciences, mathematics, engineering, or business. Students are expected to have a thorough understanding of the concepts introduced in Mathematics 11 and 12. The recommended minimum prerequisite mark is a "B" in Math 12.

This Course

This is a self-paced, self-directed course, which means you are expected to work independently and make effective use of your time. Individual help is always available from your instructor at the Learning Centre.

Textbook

Calculus - a first course, published by McGraw-Hill Ryerson

Course Outline

	Unit	Chapter	Topic
Module 1	1	1	Limits and Rates of Change
	2	2	Derivatives
	3	3	Applications of Derivatives
	4	4	Extreme Values
	5	5	Curve Sketching
Module 2	6	7	Derivatives of Trigonometric Functions
	7	8	Exponential and Logarithmic Functions
	8	9	Differential Equations
	9	10	Area
	10	11	Integrals

You will write a **test for each unit** and a **final exam for each module**.

Course Work

There are three levels of exercises in your textbook: A, B, and C. In order to master the skills included in each section, you are expected to complete as many questions at the **A** and **B** levels as necessary. Level **C** exercises are ***optional***.

Also, there are *chapter review exercises* and *chapter tests* at the end of each chapter in your textbook. The questions in these sections will be very useful to you in determining your readiness for the unit tests and module finals.

The following sections are ***omitted***: 3.6, 5.6, 8.6, and 9.5

Use the answer key at the back of the book to check your work. In addition, you may access a solution manual available at the Learning Centre which contains detailed solutions to all the questions in textbook.

You will need at least two hours for each unit test and three hours or more for the Module 1 and Module 2 final exams.

Evaluation

To complete the course successfully, you must achieve at least 50% as a final mark. The following is breakdown of the course evaluation.

- Unit Tests 10 tests, 5% each..... 50%
- Module 1 Final Units 1 - 5..... 25%
- Module 2 Final Units 6 - 10..... 25%

You are expected to write the tests in numerical order, starting with the unit 1 test and finishing with the Module 2 Final.

Important to Remember

- All tests **must** be written at CLOC during the Learning Centre hours on **Tuesdays**, **Wednesdays**, and **Thursdays**.
- You need to write the **unit 1 test** within 30 days of registering for this course.
- There is no rewrite for any of the tests.
- No graphing calculator is allowed. You may use a scientific non-programmable calculator on all the tests.
- You need to complete all your work and sign out 10 minutes before the closing time.

Study Guide

An important element for success in this course will be your study skills. It is much more effective to do some work every day rather than engaging in "marathon" sessions once every few days.

1. Set yourself realistic target dates.
2. Establish a study schedule for yourself and stick to it.

Prescribed Learning Outcomes

- It is expected that students will use a variety of methods to solve real-life, practical, technical, and theoretical problems.
- It is expected that students will understand that calculus was developed to help model dynamic situations.
- It is expected that students will understand the historical background and problems that led to the development of calculus.
- It is expected that students will represent and analyze rational, inverse trigonometric, base *e* exponential, natural logarithmic, elementary implicit, and composite functions, using technology as appropriate.
- It is expected that students will understand the concept of a limit of a function, notation used, and be able to evaluate the limit of a function.
- It is expected that students will understand the concept of a derivative and evaluate derivatives of a function using the definition of derivative.
- It is expected that students will determine derivatives of functions using a variety of techniques.
- It is expected that students will solve applied problems from a variety of fields including the Physical and Biological Sciences, Economics, and Business.
- It is expected that students will use the first and second derivatives to describe the characteristic of the graph of a function.
- It is expected that students will recognize anti-differentiation (indefinite integral) as the reverse of the differentiation process.
- It is expected that students will use anti-differentiation to solve a variety of problems.