Math1206 - Calculus II
Course Outline

S. Rodney, Cape Breton University Mathematics

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1 Course Information

- **Instructor: Prof. S. Rodney**, A129-D Cape Breton University Dept. Mathematics, Physics, & Geology
- **Contact:** Email. scott_rodney@cbu.ca
- **Web Site: www.srodney.ca/1206.html**
- **Schedule: W-F 410-525pm, Lab: Starts in the FIRST WEEK**
- **Text: University Integral Calculus by Feldman, Rechnitzer, and Yeager**. This is a free text you can find here:

  https://personal.math.ubc.ca/ CLP/CLP2/Calculus

  There is also an Integral Calculus Problem book to help you study.

1.1 Handing In Bonus Problem and Homework Solutions:

All homework assigned to you will be sent to you by and handed into Crowdmark. Crowdmark will be set up during the first 2 weeks of class. I expect your solutions to follow some loose guidelines to promote legibility and clarity.

1. Write your solution by hand clearly and in your own words.
   (a) Make sure it is easy to see where a problem solution starts and where it finishes.
   (b) Write the conclusion of your work and feel free to put a box or circle around a final answer.
   (c) If you are confused and cannot continue, be honest. We will do our best to fix up any confusion.
2. Scan your work to a .PDF file named as follows: Firstinitial-Lastname-studentID-ItemRef.pdf
   - Ex 1: David MacDonald, student ID# 1234567, hands in homework 3. His file is called:

     D-MacDonald-1234567-Homework3.pdf

   - Ex 2: Liana Kovach, student ID# 9876543, hands in her 3rd bonus problem. Her submitted file is called:

     L-Kovach-9876543-Bonus3.pdf

3. You will upload this to crowdmark where the electronic copy of your work will be graded. Your graded work will be returned to you through the same system.

4. No .JPG or other image files will be accepted - please use your scanners "scan to pdf" function or Microsoft's print to PDF driver - free with any printer. There are also nice apps for your phone - see your Lab Instructor for details.

2 Course Content:

In this course you will explore how scientists measure, estimate, and calculate mathematical quantities of physical/fiscal/natural significance. You will explore some fundamental mathematical results and their applications in the real world. You will study infinite series and sequences, taylor series, the fundamental theorem of calculus, techniques of integration, techniques for finding areas and volumes of curved objects, the arc-length of a function and more!

Chapter and Section and Page number	Content Descriptor
Chapter 1.1-1.5	**Introduction to the Definite Integral and the Fundamental Theorem of Calculus** Properties of the definite integral The area between curves and the fundamental theorem of calculus Integration by substitution
Chapters 3.1-3.6	**Sequences, Series, and Taylor Series with applications** Basic properties of sequences and series. 2 convergence tests and Geometric Series Absolute convergence and power series Power series representation of functions Taylor and MacLaurin series
Chapter 1.6-1.12	**Techniques of Integration, Numerical Integration, Volumes, and Surface Area** integration by parts integration of trig functions and trig substitution partial fraction decompositions improper integral
Chapter 2.1-2.2 + notes	**Ideas concerning work and averages, and if time: arclength**

Need a Tutor? many students find it necessary to find a tutor to help them master more difficult concepts in Calculus. Feel free to contact Dr. Rodney at any time for a tutor recommendation or you may visit the Math and Science Center for other tutor information.

3 Evaluation

In this course, your knowledge of course material will be evaluated in 3 ways. First, there will be lab work, a midterm test and a cumulative final exam written during the CBU final exam period. Here is the breakdown:

- Homework (5%)
- Lab (15%)
- Class Test 1(10% or 25%)
- Class Test 2(25% or 10%)
- Final Exam (45%)

Some modifications to this scheme may be made at the discretion of Dr. Rodney. Any modification made will be to the benefit of all students. Although the class tests are not scheduled here, you can expect them to occur in the 4th-5th weeks and the 9-10th weeks. These tests will be written during lab.

It is your responsibility and the responsibility of all students enrolled in this course to make certain all suggested homework assignments are completed, lab sessions attended, and tests written at the scheduled times. It is strongly recommended that you do your best to meet these expectations.

Using AI: There are two ways to use AI in relation to this course. There are variants of "here is the problem, write the solution for me so I can copy it and hand it in" and this is the bad way to use AI. This is especially true when keeping in mind that AI will not know the context of the coursework within our course, and it is prone to serious errors. The good way consists of variants of "I am stuck on this part of the problem, can you give me an idea of how to move forward?". It is important to keep in mind that you are ultimately responsible for your knowledge of the concepts presented in this course. You will have to demonstrate this on tests and quizzes where AI tools will be unavailable. I recommend AI as a study aid while always keeping in mind that it is better to see your professor in person!

Supplemental Exams: There are no supplemental exams possible in this course. You may defer your exam if you have an issue of a serious nature (medical - not a cold). A deferred exam is a serious matter. You must contact Prof. Rodney as soon as you are aware to arrange this - it is best to give a minimum of 2 weeks notice.

Attendance: Attendance will not be taken in this class. You are strongly encouraged to attend all lectures and lab sessions. Missing several lecture sessions is strongly statistically correlated to poor performance. If you are having difficulty with course material, Dr. Rodney is willing to help during office hours and you are encouraged to also seek help at the Math and Science Center.

Calculators and Cell Phones: Cell phones must be turned off during all lecture and lab meetings. You are not permitted to use any communications devices or calculators with graphic or algebraic capacities during any quiz, test, or exam. You are permitted a standard scientific calculator during any quiz, test, or exam. You are encouraged to use your graphic calculator while working on homework in order to develop some intuition regarding shapes and graphs.

Weather: It is possible that classes will be canceled due to poor weather conditions. See the **CBU Inclement Weather Policy** in the current academic calendar for more information.

Other Course Problems: If you are experiencing problems with the structure/delivery of course content, make an appointment with Dr. Rodney to attempt to find a resolution. If no resolution can be found, you may contact the vice chair of the department of mathematics, physics, and geology at "james_preen@cbu.ca".