

**DIFFERENTIAL CALCULUS WITH APPLICATIONS TO PHYSICAL SCIENCES
AND ENGINEERING
MATH 100:921 (2019 SUMMER TERM 1, MAY-JUNE, 2019)**

1. GENERAL INFORMATION

- Course: Math 100 (Differential Calculus with Applications), 2019S Term 1.
- Time: TuThF 14:00-15:50, W 14:00-14:50
- Location: Buch-A201
- Course website: includes syllabus and additional information
<http://www.math.ubc.ca/~cautis/math100/>
- Text: **CLP Calculus**.

You can find the text here:

http://www.math.ubc.ca/~CLP/CLP1/clp_1_dc.pdf

You can find practice problems here:

http://www.math.ubc.ca/~CLP/CLP1/problem_book_clp_1.pdf

Homework: Online homework for the course will be provided via the WeBWorK system. There will be one assignment posted per week (usually on Thursday) which is due one week later. Please note the following items:

- (1) You may attempt each question as often as you like until you solve the problem. There is no penalty for a wrong answer. This is to help you correct your own mistakes, and to get instant feedback on your attempts.
- (2) The questions are generated randomly, and the numbers are different for each student.
- (3) Please try to do the problems by yourself, and without the use of other calculators or software. Since calculators and software are not allowed in the exams, you should practice working without them.
- (4) If you really get stuck, you can request help by clicking the email instructor button. However, it may take some time to get a response, so please don't wait till the last minute.
- (5) In general, it's a good idea to start the assignments early rather than waiting till the last minute. The deadlines are enforced by the system, and it will shut down automatically when time is up, so give yourself plenty of extra time in case of problems.

The textbook comes with many practice problems (and solutions). It is recommended that you try these problems so that you may track your understanding. The number you should try depends on your level of understanding and how comfortable you feel with the material.

Tests: There will be two midterm exams (in class) and a final exam. The tests will be closed book-closed notes tests. Calculators will not be allowed.

The (tentative) dates for the two midterms are: Wednesday May 22nd and Wednesday June 12th.

Grades: Grades will be computed as the maximum of the following:

- Homework 10%, Midterms 20%+20%, Final exam 50% or
- Homework 10%, Best midterm score 20%, Final exam 70%.

The grades of those students who miss a midterm will be computed by the second method.

Synopsis: The course will cover more or less the first three chapters of the book (CLP).

The central object of study will be the derivative. The derivative is the mathematical formalization of the more intuitive idea of “rate of change”. It is hard to overestimate the importance of this relatively simple idea to science (everything from physics and medicine to economics and computer science).

Our goal is to gain a better understanding of this concept by building a mathematical foundation around it and working through many examples. We hope to strike a balance between developing our intuition, applications and mathematical rigor.

Other Advice Unlike a novel, reading mathematics is a slow process. One could very well spend hours reading one page. So read it carefully until you understand. Be patient!

2. SCHEDULE

Here is a rough course schedule, subject to later adjustments.

- Week 1. CLP 1.1-1.6, 2.1-2.3
- Week 2. CLP 2.3-2.4, 2.6-2.9
- Week 3. CLP 2.10-2.12, 3.1,3.3
- Week 4. CLP 3.2,3.4-3.5
- Week 5. CLP 3.5,2.13,3.6
- Week 6. CLP 3.7,4.1