MATH 100 - Differential Calculus with Applications to Physical Sciences and Engineering
Session 2017W Term 1, September - December 2017

This document provides only a selection of information regarding the course. You should get familiar with the information in **the course webpage:**

https://www.math.ubc.ca/%7Eyhkim/yhkim-home/teaching/Math100-2017/home.html

The instructor in charge is Young-Heon Kim

Sections	Instructor	Location	Time
100 section 102	Tai-Peng Tsai	Mathematics 100	TuTh 8-930
100 section 103	Patrick Walls	Mathematics 100	MWF 12-1
100 section 104	Patrick Walls	Buchanan A104	MWF 2-3
100 section 105	Dragos Ghioca	Woodward Room 2	MWF 2-3
100 section 106	Alma Sarai Hernandez-Torres	Frederic Lasserre 105	TuTh 930-11
100 section 107	Young-Heon Kim	Buchanan A102	TuTh 930-11
100 section 109	Nguyen Lam	Leonard S. Klinck 200	TuTh 930-11

Assessment
- Math 100 is a three-credit course, with three hours of lectures per week, for one term.
- Your Maths100 grade will be computed based on the following formula:
  ◦ Final Exam 60%
  ◦ 5 quizzes totalling 25%
  ◦ Course-common WeBWorK assignments 15%

Textbook(s)
Primary text - CLP Calculus
- The textbook and problem book can be found here.
- These were written for Mathematics 100 and 180 by three UBC faculty, Joel Feldman, Andrew Rechnitzer and Elyse Yeager.
- In time the source files for the text and problem set will be released under a Creative Commons Attribution- NonCommercial-ShareAlike 4.0 International License (or similar).

Supplementary texts
- Mooculus by Fowler and Snapp- download link. Their site also has links to video lectures which you might find useful.

- [APEX Calculus](#) by Hartman et al - [download link](#). Note that you only require Volume 1 for this course.
- [Active Calculus](#) by Boelkins, Austin and Schlicker - [download link](#).

Quizzes
- Quizzes will be held every second week in your **normal lecture time and place**.
  - Each quiz will focus on the previous 2 weeks of material, but may contain any earlier material.
  - The papers and solutions for all quizzes are below.
- Each quiz will be **25 minutes** long and consist of
  - 2 very short answer questions
  - 2 short answer questions
  - 1 long answer question
- though this may change later in the term.
- The quizzes will be held on the following Thursdays and Fridays:
  - September 21 & 22
  - October 5 & 6
  - October 19 & 20
  - November 2 & 3
  - November 16 & 17
- Note - if your class meets Thursdays then your quizzes will be on the 21, 5, 19, 2 & 16. While if your class meets Fridays then you will have quizzes on the 22, 6, 20, 3 & 17.

WeBWorK link and homework problems
- Math 100 use the [WeBWorK](#) online homework system.
- You access the system through [MATH100-ALL_2017W1.](#)
- You will need your CWL login and password to access the homework sets.
- This system has many advantages (including slightly randomizing homework problems and providing you with instant feedback).
- Each week you will be assigned about 10 to 20 WeBWorK problems which will be due the following week.
- Assignment 0 will open early in the first week.
  - It is designed to help you learn the WeBWorK system.
  - Please start and complete it in the first week of classes - it will make the other assignments easier.
  - It is not used for assessment - it does not count towards the WeBWorK component of your marks.
- **All other assignments will be open from 1am on Thursday mornings and due 11pm on Friday night (1 week later).**
  - This gives you time to seek homework help before the weekend.

- ◦ It also means there is a small overlap between assignments.
- ◦ Please keep up to date!

Final Exam

- The final exam will be held during the exam period - December 5 until December 20. Saturdays are included in the exam schedule.
- It will cover the entire syllabus for the course.
- If the exam is scheduled - you can find it here.
- We remind you that it is your responsibility to get to the correct exam at the correct location at the correct time. Check and recheck your exam times and places.
- You should not plan any travel until the date of your exams are known.
- We will **not** organize a special exam for you just because the flight you booked leaves before the exam.
- See "Course policies" below about what to do if you are unable to attend the final exam.

Missed quizzes
- **If a student misses a quiz, that student shall provide a documented excuse otherwise a mark of zero will be entered for that quiz.**
- Examples of valid excuses are an illness which has been documented by a physician and Student Health Services, or an absence to play a varsity sport (your coach will provide you with a letter).
- A physician's note must specifically state that the student was medically unfit to write the missed assessment on the date of the exam. Absence of this exact information will result in a mark of 0.
- Your instructor should be notified **within 48 hours** of such an absence and appropriate documentation should be produced **within 7 days**. Failure to comply with these time limits will result in a mark of zero.
- It is possible that if you are ill or absent (with proper documentation as above) your instructor may, **at their discretion**, arrange for you to take a quiz in another section - if your quiz is on a Thursday it may be possible to sit on a Friday in a different section (and vice versa).
- Otherwise **there will be no make-up quizzes, and the weight of the missed quiz will be transferred to the final examination.**
- Finally - Please note that a student may NOT have 100% of their assessment based on the final examination. A student who has not completed a substantial portion of the term work normally shall not be admitted to the final examination.

Missed final exam
- You will need to present your situation to your faculty's Advising Office to be considered for a deferred exam.

- See the Calendar for [detailed regulations](#) .
- Your performance in a course up to the exam is taken into consideration in granting a deferred exam status (for instance, failing badly normally means you will not be granted a deferred exam).
- For deferred exams in mathematics, students generally sit the next available exam for the course they are taking, which could be several months after the original exam was scheduled.

Course outline
- All sections of Math 100 cover the topics listed below.
- A "week" represents *approximately* 150 minutes of class time, not necessarily a calendar week.
- Also see the [learning objectives](#).
- The columns below correspond to sections of different texts
  - Your primary text
    - [CLP textbook](#) and [CLP problem book](#) by Feldman, Rechnitzer and Yeager.
  - Secondary suggested texts
    - [Mooculus](#) by Fowler and Snapp
    - [APEX Calculus](#) by Hartman et al
    - [Active Calculus](#) by Boelkins, Austin and Schlicker
  - A text that was used previously for this course (you do not have to buy this, but it is a perfectly good text)
    - Stewart Calculus 7th edition (though any edition that includes single variable calculus will do)

	Topics	CLP Text	Active Calculu	Apex Calculus	Mooculus	Stewart
Week 1	Tangents and velocity	1.1-1.4	1.1-1.2	1.1 & 1.3-1.4	1.1-1.3	2.1-2.3
Week 2	Limits at infinity Continuity	1.5-1.6 & 2.1-2.3	1.7 2.8	1.5-1.6 & 2.1-2.2	2.1-2.3 & 3.1	2.5-2.7
Week 3	A second look at derivatives	2.3-2.4 & 2.6-2.7	1.4, 2.1, 2.3	2.3-2.4	3.1-3.2 & 5.1-5.2	2.8 & 3.1-3.2
Week 4	Derivatives of trig functions	2.8-2.9 & 0.6	2.2,2.4-2.6	2.3-2.4 2.5	7.1 & 6.1 & 0.2	3.3-3.4 & 1.6
Week 5	Logarithms (and their derivatives)	2.10-2.12	2.6-2.7	2.6-2.7	6.2-6.3 & 7.2	3.5-3.6
Week 6	Rates of change Exponential growth	3.1 3.3			8.2 & 11.2	3.7-3.8
Week 7	Related rates Linear	3.2 3.4	3.5 1.8	4.2 4.4	8.3 & 10.1 no Taylor	3.9-3.10 no Taylor

	Topics	CLP Text	Active Calculu	Apex Calculus	Mooculus	Stewart
Week 8	Taylor's formula and remainders	3.4 3.5	8.5 3.3	8.7 3.1	no Taylor 4.1 & 9.1	no Taylor 4.1
Week 9	Mean value theorem	2.13 3.6	no MVT 3.2	3.2, 3.3-3.5	10.3 & 4.1	4.2-4.3 & 4.5
Week 10	More curve sketching	3.6	3.2	3.3-3.5	4.2-4.5	4.3 & 4.5
Week 11	Optimisation problems	3.5 3.7	3.4 & 2.8	4.3	9.2 & 8.1	4.4 & 4.7
Week 12	Antiderivatives Review (if time)	4.1	4.4		11.1	4.9

Piazza
- [Piazza](#) is a message board where students can go online and post questions that your fellow students can answer.
- It is not a required part of the course - but you may find it helpful.
- If you wish to sign up then you do so through [UBC connect](#) - there will be a link your maths course page.
- After you have signed up, you can log in [HERE](#)

Very useful links

- **[UBC Connect](#)** - not used much for our course, but you can see your quiz grades there and also use it to sign up for [piazza](#).
- **[Course Outline](#)** - list of topics covered each week.
- **[Learning Objectives](#)** (8 page PDF)
- **[WeBWorK](#)** - online homework system you will get to know well. **[Find MATH100-ALL_2017W1]**
- **[Course sections and websites](#)**
- **[CLP text book](#)** - your primary textbook for the course.
- **[CLP problem book](#)** you should do plenty of these questions each week (you do not hand them in).
- **[Access and diversity](#)** - if you require assistance from A&D, such as registering for assistance with assessment, we suggest you approach them as soon as possible.
- **[Old exams](#)** - hosted on the Mathematics Department website.
- **[A wiki of old exams](#)** - developed by mathematics graduate students.
- Please look at the Appendix in the **[CLP textbook](#)** on high school trigonometry and geometry (areas and volumes) that we expect you to know. The appendix is divided into 3 sections:
    - What you should know,
    - What you should be able to derive, and
    - What you don't need to know but might find interesting.