MATH 253 ALL Multivariable Calculus

Jump to Today

COURSE: MATH 253 Multivariable Calculus

CREDITS: 3

TERM: 2019 WT1

Welcome to MATH 253! This is the common canvas site for all sections of MATH 253 in Term 1 of the 2019W session (September to December 2018).

INDIVIDUAL SECTIONS

- SECTION 101
  Instructor: **Jim Bryan (http://www.math.ubc.ca/~jbryan)**
  Time: MWF 11:00 am -11:50 am,
  Room: MATH 100
  Office hours: TBA in Math 226
- SECTION 102
  Instructor: Jun-cheng Wei
  Time: MWF 11:00 am-11:50 am
  Room: BUCH A201
  Office hours: TBA in Math ???
- SECTION 103
  Instructor: Ming Zhang
  Time: MWF 11:00 am-11:50 am
  Room: GEOG-200
  Office hours: TBA in Math ???
- SECTION 104
  Instructor: Alex Weekes
  Time: MWF 11:00 am-11:50 am
  Room: MCLD-228
  Office hours: TBA in Math ???
- SECTION 105
  Instructor: Can Selcuk
  Time: MWF 11:00 am-11:50 am
  Room: LSK 200
  Office hours: TBA in Math ???

Midterms

There will be four midterms. Tentative dates of midterms are the Wednesdays September 25th, October 16th, November 6th, and November 27th. Be sure to take the midterm in the section in which you are registered. Problems on the midterms will have significant overlap with the assigned practice problems.

Piazza

We will be using Piazza for discussions. Please use this link to register:

piazza.com/ubc.ca/winterterm12019/math253all (http://piazza.com/ubc.ca/winterterm12019/math253all)

This is the best place to ask questions in this course. The TAs and the instructors will monitor Piazza and answer questions.

Grading Policy

Your grade in the course will be determined by maximum of the following two grading schemes:

Scheme 1: Final Grade = 50% * (Final exam score) + 40% * (Midterm scores) + 10% * (Webwork scores)

Scheme 2: Final Grade = Final exam score - 10.

Scheme 2 is your "safety net". Even if you do very poorly during the term, you can still do well in the class (for example, even if you are failing going into the final, if you get a 95 (for example) on the final, your final grade will be an 85). In practice, scheme 2 only applies to about 5% of the students. For the most part, it is very difficult to do well on the final exam without working hard throughout the term (which usually means doing well on the mid terms). **Do not plan on using Scheme 2!).**

All the basic information on these can be found below. The tests will be held during regular class time. It is your own responsibility to also check your own sections module (within this site) for any section specific instructions regarding these and for other announcements in general. The final exam however will be the same for all sections.

There will be four midterm tests throughout the term. More information is available in the modules section.

TEXTBOOKS AND REFERENCES

Our main text book is the following:

- **UBC Calculus Textbook series (http://www.math.ubc.ca/~CLP/index.html)** (See CLP 3 of this series. Reference to sections and also suggested exercises appear below)
  (https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=10)

(https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=10) Our reference and use of these free online textbooks will be in accordance with the **creative commons liscence (http://creativecommons.org/licenses/by-nc-sa/3.0/)** .

COURSE OUTLINE

The following is an outline of the topics to be covered in the course.

PART I: 3-DIMENSIONAL GEOMETRY , Chapter 1 CLPIII

Coordinate systems, equations and surfaces, vectors, equations of surfaces. Getting acquainted with the tools of 3D -geometry. Three dimensional geometry is one of the main new facets of multivariable calculus.

TOPICS:

-three dimensional coordinate systems

-equations and surfaces in space

-vectors; arithmetic, dot product, cross product

-lines and planes

PART II: DIFFERENTIATION OF MULTIVARIABLE FUNCTIONS, Chapter 2 CLPIII

TOPICS:

-Functions of several variables

-limits and continuity

-Partial derivatives

-Tangent planes and linear approximations

-chain rule

-directional derivatives and gradient vector

-Maximum and minimum values, Lagrange multipliers

PART III: INTEGRATION OF MULTIVARIABLE FUNCTIONS, Chapter 3 CLPIII

TOPICS:

-double integrals over rectangles

-double integrals over general regions

-Double integrals in polar coordinates

-applications of double integrals

-triple integral

-Triple integrals in cylindrical and spherical coordinates

Course policies

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1. No electronic devices will be allowed at the final examination. This includes calculators, cell phones, music players, and all other such devices. Formula sheets and other memory aids will not be allowed.
2. Missing tests: Each student may submit a **Student Declaration of Academic Concession for Math courses (http://www.math.ubc.ca/Ugrad/ugradForm/Student_Declaration_Academic_Concession_MATH.pdf)** once per term without further documentation. Otherwise, If a student misses a test, that student shall either provide a documented excuse or a mark of zero will be entered for that test. 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). **In the case of illness, the physicians note must contain the statement that ``this student was/is physically unfit to attend the examination on the scheduled date"**. There will be no make-up tests, and the weight of the missed midterm will be transferred to the final examination. **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.**
3. Missing the Final Exam: You will need to present your situation to the Dean's Office of your Faculty to be considered for a deferred exam. See the Calendar for **detailed regulations**

(http://www.students.ubc.ca/calendar/index.cfm?tree=12,215,410,407) . Your performance in a course up to the exam is taken into consideration in granting a deferred exam status (e.g. failing badly generally means you won't be granted a deferred exam). In Mathematics, generally students sit the next available exam for the course they are taking, which could be several months after the original exam was scheduled.

4. UBC takes cheating incidents very seriously. After due investigation, students found guilty of cheating on tests and examinations are usually given a final grade of 0 in the course and suspended from UBC for one year. **More information.** (http://www.students.ubc.ca/calendar/index.cfm?tree=3,54,111,0)
5. Note that academic misconduct includes misrepresenting a medical excuse or other personal situation for the purposes of postponing an examination or quiz or otherwise obtaining an academic concession.

6. All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the Course Instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline.
   Permission to record lectures in any way or form must be obtained from your own sections instructor.

Course Summary:

Date	Details