Term 2, 2024/2025: Jan 2025 -- Apr 2025
Math 121:201 Honours Integral Calculus.

All the information is on Canvas.

Instructor: Young-Heon Kim
https://personal.math.ubc.ca/~yhkim/
Email: yhkim "at" math "dot" ubc "dot" ca
Phone 604-822-6324 **Fax** 604-822-6074 **Office** MATH 216
Class: MonTueWedFri 14:00 -15:00.
Classroom: CHEM-Floor B1-Room C126
First day of class: January 6, 2025. Last day of class: April 8, 2025
Office hours: tba

About the Course
Math 121 is an honours version of Math 101, covering mostly the same topics but in greater
foundational depth and with more emphasis on harder and/or theoretical exercises. Precise
definitions and statements of theorems will be given. The final exam will have a certain overlap
with the Math 101 exam. This will be used to normalize the final course grades in Math 121. The
prerequisite for Math 121 is a grade of 68% in Math 120 or 80% in Math 100, 102, 104, 180 or
184, or (c) a score of 5 in AP Calculus AB.

Main Text: CLP-2 textbook *https://personal.math.ubc.ca/~CLP/CLP2/*
Note that many optional material in this textbook will be mandatory in this course.

Supplementary text:
- A. Figalli's lecture notes for a course at ETH-Zurich: *https://metaphor.ethz.ch/x/2023/hs/401-1261-07L/ex/LectureNotes.pdf*
- Book of Proof. *https://richardhammack.github.io/BookOfProof/*

Course Outline (subject to changes)
• Integration (2 weeks):
• Techniques of Integration (3 weeks):
• Applications of Integration (3 weeks)
• Sequences, Series and Power Series (4 weeks)
• Additional topics, review (1 week)

How to succeed in this course:
It is very important to learn mathematics by "doing". For example, it is not enough to read a
worked out example from a book or lecture notes. It is not enough to understand each step in the
solution. You have to struggle to work out examples or problems by yourself, without looking at
the solutions. This way, you have to build up mathematical intuition on the subject.

Exams:

Midterm 1 (5%): **Tuesday, Feb. 11, 2025. 50 min. Take-home.** Self-marking; graded take-home midterm exam submission is due on Friday, Feb. 14, 2025.
Midterm 2 (5%): Tuesday, Mar. 11, 2025. 50 min. **Take-home.** Self-marking: graded take-home midterm exam submission is due on Friday, Mar. 14, 2025.

Midterms. Self administered take home exam.
• Students write the exam simulating an in-class exam.
• Students mark their own exam and then submit the graded papers.
• The solutions and marking schemes will be provided by the instructor.
• **Students will get full official mark as long as they submit their self graded exam.** One of the points is to honestly assess one's own work.
• **Students who do not submit the graded exam will get zero mark.**
• We will still record the students' self mark, only to keep record of students' progress.

Final Exam: TBA. 150min.

Homework Assignments Policy:
Careful work on the assignments is the best way to prepare for the midterms and the final exam. There will be written HW (WHW)'s.
• Late homework is **not** accepted.
• Unreadable homework will get a zero mark.
• Work must be shown.
• Missed homework will count as a zero mark.
• The number of each homework problem should be clearly printed.

Written HW (WHW): There will be a total of 8 written HW (WHW) assignments to be turned in, but only the best 7 will count towards your final grade.
• It is probable that only a subset of those problems turned in would be graded, and you will not be informed (in advance) which ones these are. For example, if your homework does not contain any of the problems to be graded (which will be known only after the due date), you will get zero mark. So, it would be better for you to do all the problems to be handed in. For the selected problems, only some important steps and the final answer will be checked.
• To ask change of the marking of your WHW, you have to follow a certain procedure. Namely, if you have any complaint on the marking, you first study the solution provided very carefully, and then give me a **written note** to explain in detail what was wrong in the marking. I will handle only such written notes. Such a note should be handed in as soon as possible.

Grading
Your grade for the course will be computed roughly as follows:

Homework (Written HW (WHW)): 25%

Midterm 1 (5%): Tuesday, Feb. 11, 2025. 50 min **Take-home. Self-marking.**
Midterm 2 (5%): Tuesday, Mar. 11, 2025. 50 min. **Take-home. Self-marking.**

Final Exam: 60%. 150 min exam.

Participation and attitude 5%.
- This is calculated at the end of the semester as follows:
- All students will start with an INITIAL PARTICIPATION GRADE proportional to the rest of their course work. For example, a student with 57/95 will start with 3/5 participation mark.
- **To earn more grades than the initial participation grade you should submit a one page essay discussing your learning experiences and how you have participated throughout the course.** For example, you can explain what topic was most interesting to you and why, how the learning experiences have enhanced your mathematical understanding, as well as how you have participated classes/office hours/Piazza discussions. Then the instructor will determine the additional marks. **The essay is due Thursday, April 11.**
- Under the decision of instructors, a small portion of the participation mark (maximum 1out of 5) might be assigned as a bonus mark, e.g. for participating in surveys/evaluations.

Important Notes:
All marks are subject to scaling.
- IT IS ESPECIALLY IMPORTANT that students know that IF THEY DO NOT FULFILL THE COURSE REQUIREMENTS DURING THE TERM (including not writing the midterm test(s) even if you agree to transfer the weight to the final) AND THEN MISS THE FINAL EXAMINATION, THEY MAY BE DEEMED INELIGIBLE FOR A DEFERRED FINAL.

HW Assignments Schedule: All times are the Vancouver time.
There will be a total of 8 Written HW assignments (WHW) throughout the term. The best 7 WHWs will be counted towards the course grade:
- Jan 24 (Friday): HW 1 due
- Jan 31 (Friday): HW 2 due
- Feb 7 (Friday): HW 3 due
- Feb 11 (Tuesday): Take-home midterm exam.
- Feb 14 (Friday): graded take-home midterm exam submission due.
- UBC break: Feb 17--21
- Feb 28 (Friday): HW 4 due
- March 7 (Friday) HW 5 due
- March 11 (Tuesday): Take-home midterm exam.
- March 14 (Friday): graded take-home midterm exam submission due.
- March 21 (Friday): HW 6 due
- March 28 (Friday): HW 7 due
- April 4 (Friday): HW 8 due.

Canvas email:
If you have course related questions for the instructor, then please use the Canvas email. Of course, visiting the office hours is a great way to communicate with the instructor. Please avoid using my math email address, unless urgent, to help me keep my math mailbox under the storage limit; using the Canvas email will also help your message to be not classified as a spam and missed.

<u>Other general information:</u>

<u>About the use of generative AI (e.g. ChatGPT or similar) tools:</u>
The use of generative AI tools, including ChatGPT and other similar tools, to complete or support the completion of any form of assignment or assessment in this course is **not** allowed, unless explicitly stated otherwise by the instructor in this course, and would be considered academic misconduct.

Academic Integrity:
Academic integrity, in short, means being an honest, diligent, and responsible scholar.

- **To what extent can students collaborate on homework or other assignments?**
  - You are encouraged to collaborate with fellow students to work on problems together. However, the final work should be in your own terms and your own writing, acknowledging all sources of information or help. This also means you should not cheat, copy, or mislead others about what is your work; nor should you help others to do the same.
- **What is permitted to be used during tests?**
  - Only pen/pencils/erasers.
- **How should I, as a student, resolve any uncertainty I may have about academic integrity and academic misconduct?**
  - Contact your instructor.

For more information, see https://academicintegrity.ubc.ca/resources/. Find information in Canvas Modules.

Academic concession
Question: How do I submit an academic concession?
Answer: Academic concessions for final assignments and exams are handled through your Faculty Advising Office. For in-term concessions, fill in and submit the form here to your instructor.

UBC Vancouver Senate's **Academic Concession Policy V-135 (http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,329,0,0).** Students are advised to read **this policy carefully.**

Accessibility resources at UBC:
Centre for Accessibility: https://students.ubc.ca/about-student-services/centre-for-accessibility/

Equity/Diversity/Inclusion:

Treat people with equal respect regardless of their gender, class, sexual orientation, ethnicity, appearance, religion, and so on, and regardless of their current level of mathematical ability. Be inclusive and considerate.
https://students.ubc.ca/campus-life/equity-diversity-inclusion-resources/

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The University of British Columbia is located on the traditional, ancestral, and unceded territory of the xʷməθkʷəy̓əm Musqueam people. We are grateful to live, work, and study on a land full of rich history and community.