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Mathematics 300 , Section 951
July - August 2023, in Mathematics Building, room 100
Instructor: Zinovy Reichstein

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Course title: Introduction to Complex Variables.

Time and place: Monday, 13-13:50, Tuesday, Wednesday, Thursday, 13-14:50. We will meet in person in room 100, Mathematics Building every time, except for Monday, August 7, when UBC will be closed for BC Day, and Wednesdays, July 12, July 26 and August 9, when we will meet on zoom for Group Work instead (see below).

Textbook: Saff and Snider, Fundamentals of Complex Analysis with Applications to Engineering, Science and Mathematics, third edition. This book is well suited to Math 300, I will follow it closely. The specific sections we will cover are 1.1-1.6, 2.1-2.6, 3.1-3.3, 3.5, 4.1-4.6, 5.1-5.3, 5.5, 5.6, 6.1, 6.3.

Course content: We will begin by discussing the complex numbers and functions of a complex variable, then proceed to develop differential and integral calculus in this setting. The resulting theory is beautiful and in many ways quite different from the "usual" calculus for functions of either one or several real variables. Complex analysis has many applications to science, engineering and other areas of mathematics. Proofs are integral to the subject; we will encounter them in every part of the course: lectures, textbook, homework, tests, etc.

Canvas Page: I will be relying on Canvas for every aspect of the course and updating it on a regular basis. This page will not be updated.

Attendance: Summer classes at UBC cover 13 weeks of material in 6 weeks. They are fast-paced and intense. Please make sure you allocate enough time to this class from the very beginning.

You are expected to attend the lectures. If you miss one occasionally, you can catch up by reading the lecture notes I post on Canvas. Don't make a habit of it though; we will be covering the course material at a fast and accelerating pace, and if you miss too much, it will be hard to catch up. **All exams will be in person, no exceptions.** If you schedule does not allow you to attend the exams or to attend the lectures on a regular basis, please do not sign up for this class.

Registration: I am not authorized to register students into my classes. If you have any questions or concerns about registering for this class, please contact the Mathematics Department.

Homework: I plan to assign three problem sets during the term. Barring the unexpected, they will be due by 9pm on the following days:

Problem Set 1: Saturday, July 15.

Problem Set 2: Saturday, July 22.

Problem Set 3: Saturday, August 12.

Late homework will not be accepted. The lowest homework grade will be dropped.

Group work: On Wednesdays, July 12 (week 2), July 26 (week 4) and August 9 (week 6) we will meet on zoom to work on problems in groups during regular class hours, 1-2:50pm. You can log in from anywhere. Zoom will divide you into groups at random and assign each group to a virtual break-out room. I will give each group problems to work on and will be circulating among the rooms. You can discuss the problems with other students in your group or work on your own, as you prefer. You are also welcome to ask me questions during group work. By the end of class (i.e., by 2:50 pm) each student will scan his/her solutions and upload them onto canvas. These papers will be graded and will count towards the final course mark (see below).

Note that the main purpose of the homework and group work is to give you an opportunity to practice and internalize the concepts introduced in the lectures. I will assign small amounts of credit to keep you engaged, but evaluation is only a secondary purpose for these activities.

Midterms: There will be two in-class midterms, scheduled for Tuesday, July 18 (week 3) and Thursday, August 3 (week 5).

Final Exam: There will be a 2.5 hour final exam in this class some time during the final exam period, August 15-19. The specific date/time will be set by the central administration and announced some time in the middle of the term. I will let you know as soon as I find out.

Marking scheme: I will compute the total term mark for each student in two ways,

Total 1 := HW (10%) + GW (10%) + Midterms 1 and 2 (20% each) + Final (40%)

Total 2 := HW (10%) + GW (10% each) + Top midterm (30%) + Final (50%)

and use whichever one is higher. Here HW stands for the total homework score, based on the top two homework assignments and GW stands for the total group work score, based on the top two group work assignments. I will drop the lowest homework score and the lowest group work score.