

Mathematics 300 , Section 951
July - August 2025

Course title: Introduction to Complex Variables.

Time and place: Monday, 13-13:50, Tuesday, Wednesday, Thursday, 13-14:50 in LSK 200.

The first day of classes is Wednesday, July 2.

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 I plan to 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 throughout the term.

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: You are expected to attend the lectures. If you miss one occasionally, you can catch up by reading the lecture notes. (I will be posting lecture notes in the Files section on Canvas.) Don't make a habit of missing class though. Summer classes at UBC cover 13 weeks of material in 6 weeks. The summer version of Math 300 moves at a fast and accelerating pace. If you fall behind even a little bit, make sure you clear it up as soon as you can. Feel free to ask me for help.

I do not recommend taking this class if your schedule does not allow you to attend all of the group work sessions and exams, or to attend the lectures on a regular basis. Also, I don't recommend taking this course if you have other significant time commitments for Summer Term 2, such as travel, a summer job or a USRA project.

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 webwork problem sets during the term. Barring the unexpected, they will be due by 9pm on the following days:

Problem Set 1: Friday, July 11 (week 2),

Problem Set 2: Friday, July 25 (week 4),

Problem Set 3: Friday, August 8 (week 6).

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

Group work sessions are scheduled for Monday, July 7 (week 2), Monday, July 14 (week 3), and Tuesday, August 5 (week 6). Each time I will divide the class into groups at random. You can discuss the problems with other students in your group, you are also

welcome to ask me questions. Marks will be assigned to individual students (not groups); these will count towards the final course mark; see below.

Note that the main purpose of the homework and group work is to give students 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.

Midterm Exams: There will be an in-class midterm, Monday, July 21 (week 4).

Final Exam: The final exam will take place some time during the final exam period, August 13-16. The specific time and place are set by UBC's central administration; they are usually announced some time in the middle of the term. Students who are unable to take the final exam at the scheduled time (e.g., for health reasons) should apply for deferred standing (SD) status through their faculty. I do not have the authority to change the timing of the final exam or grant the SD status.

All group work sessions and exams will be in person, no exceptions.

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

Total 1 := HW (10%) + GW (15%) + Midterm (25%) + Final (50%)

Total 2 := HW (10%) + GW (15%) + Final (75%)

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 three group work assignments. I will drop the lowest homework score and the lowest group work score.

Note that I have built generous concessions into this marking scheme. Students can miss (or do poorly on) one homework assignment, one group assignment and the midterm without a penalty. These concessions are automatic, no request, justification or explanation required. The flip side is that these concessions are intended to cover all eventualities, including illness and emergencies. Use them sparingly.