

## MATH 300: Introduction to Complex Variables

**Instructors:** Pramathanath Sastry (Section 201, Email: [pramath@math.ubc.ca](mailto:pramath@math.ubc.ca))  
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**Lectures:** Tue and Thu, Civil and Mechanical Engineering 1204 (Section 201: 14:00-15:30, Section 202: 9:30-11:00)

**COVID-19:** This course will be online for a portion of the term. We will start in-person meetings on a date yet to be determined by the University. At the very earliest, this will be Jan 24th. This date may be updated as time goes on. When we resume in-person activities, we will meet in our scheduled classroom space on campus. For meetings prior to that time, we will meet on Zoom:

Section 201: <https://ubc.zoom.us/j/67657514716?pwd=SXROU1JNT1ovVEtmYjR3a08rZ0IwUT09>

Section 202: <https://ubc.zoom.us/j/64432341131?pwd=TjZyV3o0ZmJUYU9ocEZndXppMSs4QT09>.

All online lectures will be conducted on Zoom and will be recorded.

**Dates:** 11 Jan, 2022 to 7 Apr, 2022

**Office hours:** Indicated on Canvas.

**TAs:** Simone Coccia and Andreas Hatziliou

**Course webpage:** We will use Canvas (<https://canvas.ubc.ca/courses/85813> for Section 201, <https://canvas.ubc.ca/courses/85184> for Section 202)

**Piazza:** There is a link to Piazza on Canvas. Please use Piazza for questions that arise in your learning and for questions about all issues related to the course.

**Text:** The course text is E.B. Saff, A.D. Snider, “Fundamentals of Complex Analysis with Applications to Engineering, Science and Mathematics”, third edition.

**Outline.** We will cover the first six chapters of the text book. Topics include

1. Complex numbers (sections 1.1 - 1.6 in the text)
2. Complex derivatives and analytic functions (sections 2.1 - 2.5 in the text)
3. Elementary functions (sections 3.1 - 3.3, 3.5 in the text)
4. Contour integration (sections 4.1 - 4.3 in the text)
5. Cauchy’s theorem (section 4.4 in the text)
6. Cauchy’s Integral Formula and its applications (section 4.5-4.6 in the text)
7. Taylor series ( 5.1 - 5.3 in the text)
8. Laurent series, singularities and residues. (sections 5.5, 5.6, 6.1-6.3 in the text)

**Homework:** Nine assignments will be given regularly according to the following schedule. Assignments are to be submitted on Canvas by 08:00 AM (Vancouver time) on the due date. This is a strict deadline: *no late assignments will be accepted.*

Assignment given	Assignment due
14 Jan	21 Jan
21 Jan	28 Jan
28 Jan	4 Feb
4 Feb	11 Feb
11 Feb	18 Feb
18 Feb	25 Feb
4 Mar	11 Mar
11 Mar	18 Mar
18 Mar	25 Mar

**Tests:** There will be two tests in class on the following dates.

Tuesday, 1 March      Thursday, 31 March.

Midterm break is 21-25 February. **COVID-19:** A test is in-person if and only if the university has returned to in-person lectures during the week when the test is scheduled.

Missing a test normally results in a mark of zero. There will be no make up tests. Missing the test for a valid reason normally results in the weight of that test being transferred to the final exam. Any student who misses the test is to present to their instructor the Department of Mathematics self-declaration form for reporting a missed assessment to their instructor within 72 hours of the test date.

**Final exam:** There will be a final exam during the April examination period.

**Evaluation:** The final mark will be calculated as follows:

Homework: 15% (lowest assignment score will be dropped)

Tests: 20% each

Final exam: 45%

**Prerequisites:** You must have taken one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 254, and you must either have taken or currently be taking one of MATH 217, MATH 227, MATH 254, MATH 317.

**Academic integrity:** By enrolling as a student at UBC, you have agreed to abide by the University Rules on Academic Honesty. Here is what you have agreed to and are bound by: “Academic honesty is essential to the continued functioning of the University of British Columbia as an institution of higher learning and research. All UBC students are expected to behave as honest and responsible members of an academic community. Breach of those expectations or failure to follow the appropriate policies, principles, rules, and guidelines of the University with respect to academic honesty may result in disciplinary action. It is the student’s obligation to inform himself or herself of the applicable standards for academic honesty. Students must be aware that standards at the University of British Columbia may be different from those in secondary schools or at other institutions. If a student is in any doubt as to the standard of academic honesty in a particular course or assignment, then the student must consult with the instructor as soon as possible, and in no case should a student submit an assignment if the student is not clear on the relevant standard of academic honesty. If an allegation is made against a student, the Registrar may place the student on academic hold until the President has made his or her final decision. When a student is placed on academic hold, the student is blocked from all activity in the Student Service Centre.”

**University policies:** UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website <https://senate.ubc.ca/policies-resources-support-student-success>.

Updated: January 10, 2022