# University of Toronto at Scarborough Division of Computer and Mathematical Sciences, Mathematics 

MAT C34F
2019/20

Complex Variables

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Lecture Time: T 2-3 (SW143), Th 2-4 (SW309)
Office hours: Tuesday 3-4 or by appointment
Textbooks: Required text: H. Priestley, Introduction to Complex Analysis
(2nd edition).
Recommended text: R.V. Churchill and J.W. Brown, Complex Variables

Syllabus: (All numbers refer to the text by Priestley)
A1 (due Thurs. September 12): The complex plane (Chaps. 1 and 3); holomorphic functions and power series (Chaps. 5 and 6); Cauchy-Riemann equations

A2 (due Thurs. September 26): Line integrals
A3 (due Thurs. October 10): Cauchy's theorem, Cauchy's integral formula (C modulus theorem, open mapping theorem, Liouville's theorem (Chaps. 13, 15 and 16)

A4 (due Thurs. November 14): Residues and poles, Laurent's theorem, meron branch points, branch cuts, poles, residues (Chaps. 9 and 17)

A5 (due Thurs. November 28): Cauchy's residue theorem;
applications of contour integration, Schwarz's lemma, argument principle (Chaps. 18, 19 and 20)

Marking scheme: Assignments 25 \%, midterm 30 \% each, final 45 \%

Assignments will be due approximately every two weeks (normally on Thursdays at the start of class). Although you are expected to do all the questions, the grader will assign grades based on a selection of your solutions.

Although you may work together and ask questions about the assignments, the work you hand in must be written up in your own words.

Midterm requested week of Oct. $28-$ Nov. 1 or Nov. 4-8.

