University of Toronto at Scarborough
Department of Computer and Mathematical Sciences

MAT D34W   2020/21

Complex Variables II

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Lecture Time: T 12–2 , Thurs 3–4

Textbooks:
                        Required text: Ruel V. Churchill, James Ward Brown
Complex Variables and Applications, eighth edition
(online), 2009.

   Office hours: Monday 11–1 (on Zoom) or by appointment
   Both lectures and office hours are on Zoom.
   Syllabus:

1. Assignment 1, Jan 28 2021:

    (a) Conformal maps

    (b) linear fractional transformations

    (c) harmonic functions

2. Assignment 2, due Feb 11 2021:

    (a) Schwarz-Christoffel transformations, multi-valued functions

3. Assignment 3, due Thurs March 11:

    (a) Laplace transforms

    (b) inverse to Laplace transforms

4. Assignment 4, due Thurs March 25, 2021:

   (a) Fourier transforms

5. Assignment 5, due Thurs April 8, 2021:

   (a) Review material from MATC34: residues, poles, Liouville , contour integrals

   (b) The Riemann sphere, the torus

   (c) Definition of Riemann surface

Marking scheme:
5 Assignments 75 %
Oral presentation (via Zoom) or written report on a topic chosen from a list of suggestions,
25 %
Although you may work together and ask questions about the assignments, the work you
hand in must be written up in your own words.