DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Mathematics & Statistics
MATH 3080: Introduction to Complex Variables (online)
Winter 2021

Instructor: Karl Dilcher, karl.dilcher@dal.ca

Lectures: Synchronous, through Collaborate Ultra (within BrightSpace). Lectures will be recorded.

Office Hours: Through Collaborate Ultra; times TBA.

Course Description (from Calendar)

An introduction to the basic elements of complex analysis. Topics include: complex numbers, functions, differentiation and integration in the complex plane, some special mappings, series in general, Taylor and Laurent Series, residues, some principles of conformal mapping theory.

Course Prerequisites

MATH 2002 or Instructor's permission.

Learning Objectives

Students will gain a solid understanding of functions, especially analytic functions, of one complex variable, of power series, and complex contour integration with applications. This course will provide the necessary prerequisite for MATH 4020/5020: Analytic Function Theory.

Course Materials

- Course Notes: “Introduction to Complex Variables”; made available electronically and free of charge in the Brightspace page for the course.
- Additional materials (such as practice problems) will also be made available, as required.

Course Delivery (online)

- Synchronous, through the course Brightspace page → Contents → Collaborate Ultra.
- M-W-F, 11:35 – 12:25.
- Attendance is strongly encouraged, but not required.
- Classes will be recorded.

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Course Assessment

Component	Weight (% of final grade)	Date
Assignments	***30 %***	weekly (except around midterm)
Midterm test	***30 %***	TBA (in consultation with class)
Final exam	***40 %***	(Scheduled during exam period)

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (<50)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirement

- *Missed midterm or final exam:* Make-up exams will be offered; SDA forms required.
- *Assignments:* The lowest two (including missed assignments) will not count. Further information can be found in a detailed set of guidelines posted on Brightspace.

Course Content

The exact schedule will remain flexible. The main topics covered are:

1. Introduction
2. Complex Numbers
3. Complex Functions
4. Integration
5. Consequences of Cauchy's Theorem
6. Laurent Series and Singularities
7. Residues