College of Staten Island, City University of New York (CUNY)

Math 431 (Section 40216): Spring 2021 Syllabus

Complex Analysis

Instructor: Joseph Maher

Office: 1S-222 Phone: (718) 982-3623 Email: joseph.maher@csi.cuny.edu

Office hours: M 2:30-4:25 W 3:35-4:25

Course location: MW 4:40-6:20 online

Textbook: Richard A. Silverman, *Complex Analysis with Applications*, 1st edition, Dover Publications 1984 ISBN:

Grading policy: 60% Homework, quizzes, class participation, oral evaluation

20% Midterm

20% Final

Additional info:

Disability policy: Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office for Disability Services. Prior to granting disability accommodations in this course, the instructor must receive written verification of student's eligibility from the Office of Disability Services, which is located in 1P-101. It is the student's responsibility to initiate contact with the Office for Disability Services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Integrity policy: CUNY's Academic Integrity Policy is available online at http://www.cuny.edu/about/info/policies/academic-integrity.pdf

College of Staten Island, Fall 2019

COMPLEX ANALYSIS

(MTH 431, Section 48241)

Instructor: Prof. Carlo Lancellotti, Rm. 1S-220, ext. 3634, carlo.lancellotti@csi.cuny.edu.

Times and locations: Monday and Wednesday 12:20-2:15 in Rm. 1S-102.

Office hours: Monday and Wednesday 11:15-12:05.

Textbook: Complex Analysis with Applications by Richard A. Silverman, Dover Publications 1984, ISBN 978-0486647623.

Grading policy: Class Participation 20%, Midterm 40%, Final 40%.

Course outline: Each numbered lecture in the table below corresponds to a two-hour class.

Lecture	Sections	Topics	Homework
1	1.1-1.4	Complex Numbers	2,4,6,11,15,18,20
2	2.1-2.4	Limits in the Complex Plane	1,5,12
3	3.1-3.4	Complex Functions	4,7,11,12,13,16,17
4	4.1-4.3	Differentiation in the Complex Plane	1,2,3,11,16,17,18,19,22
5	5.1 - 5.3	Integration in the Complex Plane	2,3,4,10
6	5.4 - 5.6	Cauchy's Integral Theorem and Formula 12,15,16,18	
7	5.7 - 5.8	Analytic and Harmonic Functions	20,21,26,27
8	6.1-6.2	Complex Series	3,9,10
9	6.3	Uniform Convergence of Series	13,16,17
10	7.1-7.2	Power Series	2,3,4,5,7
11	8.1	The Exponential and Related Functions	1,2,3,9,10
12	8.2	Fractional Linear Transformations	13,15,17,22,26
13		Review	
14		Midterm Exam	
15	9.1-9.3	Multiple-Valued Functions	3,4,5,6,10,11
16	10.1-10.2	Taylor Series 1,2,3,4,5,6,8	
17	10.3	Maximum Modulus Principle	15,28
18	11.1	Laurent Series	1,2,4,5,10
19	11.2	Isolated Singular points	11,15,16
20	11.3	Residues	$23,\!24,\!25,\!26,\!30,\!32$
21	12.1-12.2	Applications of Residues	$3,\!4,\!5$
22	12.3-12.4	Applications of Residues	14,16,17
23	12.3-12.4	Applications of Residues	20,23
24	15.1 - 15.2	Fluid Dynamics	
25	15.3	Electrostatics	
26		Review	
27		Review	
28		Final Exam	

ROLE IN CURRICULUM

Elective for mathematics major

LEARNING GOALS AND ASSESSMENT PLAN

Learning Goal	Assessment
The student will be able to discuss	NA
whether or not a complex function is	
analytic	
The student will be able to verify the	NA
Cauchy-Riemann equation.	
The student will be able to compute	NA
Cauchy integrals over a domain in the	
complex plane.	
The student will be able to apply the	NA
residue theorem and find power series	
expansion for elementary functions.	

When assessment activities are done, the results will be summarized in memorandum form and filed with the department chairperson for record keeping purposes.

Information obtained from assessment will be used to assess and self-reflect on the success of the course and to make any necessary changes to improve teaching and learning effectiveness.

Undergraduate Catalog Course Description

College of Staten Island

Course prefix:	MTH
Course number:	431
Course title:	Complex Analysis
Subject	Mathematics
Minimum credits:	4
Maximum credits:	4
Hours per week:	4
Course description:	Functions of a complex variable; Cauchy integral theorem; power series, residues, and poles; elementary confor- mal mapping. Applications to prob- lems in physics and engineering will be considered.
Prerequisite:	MTH 330 or MTH 334
Comments:	