

# COMPLEX ANALYSIS

Spring 2018

MATH-UA.0282-001

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<b>Instructor:</b>	Liming PANG	<b>Time:</b>	Tue. Thu. 15:30–16:45
<b>Email:</b>	<a href="mailto:liming@cims.nyu.edu">liming@cims.nyu.edu</a>	<b>Classroom:</b>	CIWW 202

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**Course Web Page:** <https://cims.nyu.edu/~liming/Complex/2018.html>

**Office Hours:** Thursday 10:00–12:00, CIWW Room 720

**Textbook:** James Brown and Ruel Churchill, *Complex Variables and Applications, 9th Edition*, McGraw-Hill Education, 2014

**Teaching Assistant:** Jiajun TONG ([jiajun@cims.nyu.edu](mailto:jiajun@cims.nyu.edu))

**Grading Policy:** Homework (20%), Quiz 1 (5%), Quiz 2 (5%), Midterm (30%), Final (40%).

**Exam Schedule:**

Quiz 1 .....	Feb.23 2018
Midterm .....	Mar.08 2018
Quiz 2 .....	Apr.20 2018
Final Exam .....	May.10 2018

**Class Policy:**

- Homework will be released each Thursday or Friday, and due on the following Friday during recitation. Late homework or emailed version shall NOT be accepted.
- You may discuss with your classmates about homework, but you should organize and write your solutions by yourself.
- We will NOT be able to accommodate out-of-sequence exams for purposes of more convenient travel, including already purchased tickets. Please note again the date of the exams and plan your travel accordingly.
- Exams will be close book. Books, paper or electronic material, calculator or electronic devices are NOT allowed during exams.
- The recitation is on Friday 09:30–10:45 at CIWW 202. The TA will discuss about some example exercises, remark on previous homework and review course material.

**Tentative Course Outline:**

01/23: Complex Numbers  
01/25: Exponential Form  
01/30: Limits and Continuity  
02/01: Derivatives and Differentiation  
02/06: Cauchy-Riemann Equations  
02/08: Analytic Functions  
02/13: The Exponential and Logarithmic Functions  
02/15: Branches of Logarithmic Functions, The Power Functions  
02/20: The Trigonometric Functions  
02/22: Integral Along Real Line, Contour  
02/27: Contour Integral  
03/01: Upper Bound, Antiderivative  
03/06: Review  
03/08: Midterm  
03/20: Cauchy-Goursat Theorem  
03/22: Multiply-connected Domains  
03/23: Cauchy Integral Formula  
03/29: Fundamental Theorem of Algebra, Maximum Modulus Principle  
04/03: Series and Power Series  
04/05: Taylor Series Expansion, Circle of Convergence  
04/10: Uniform Convergence, Analyticity of Power Series  
04/12: Laurent Series  
04/17: Residues  
04/19: Residue at Infinity, Isolated Singularities  
04/24: Order of Poles, Zeros  
04/26: Coincidence Theorem, Zeros and Poles  
05/01: Improper Integrals  
05/03: Improper Integrals