Syllabus

Shengtong Zhang

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1 Course Outline(subject to change)

The class will be **cumulative**: the content of each week after the first will build on that of the previous week. Therefore, you may want to read the notes or do some exercises over the week.

Week 1: Introduction to Euler's result; Complex Number, Functions on the Complex Plane.

Week 2: Holomorphic Functions; Contour Integral; Cauchy's Theorem.

Week 3: Intuition behind Cauchy's Theorem; The Residue Theorem.

Week 4: Solving Integrals via Residue Theorem.

Week 5: Liouville's Theorem; Fundamental Theorem of Algebra.

Week 6: Finite Order Functions; Hadamard's Product Formula.

Week 7: Corollarys of Hadamard's Product Formula; Summary.

2 TextBook

If you are looking for a good Complex Analysis textbook, I recommend *Complex Analysis* by M. Stein and R. Shakarchi, which I used to study Complex Analysis and plan the course. Week 1-5 covers materials from Chapter 1-3, while Week 6-7 is a brief introduction to Chapter 5.