

## Complex Analysis: Fall 2018

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- **Instructor:** Professor Chris Kottke
- **Office:** HNS 104
- **Email:** [ckottke@ncf.edu](mailto:ckottke@ncf.edu)
- **Phone:** 914-487-4516
- **Course Webpage:** <http://ckottke.ncf.edu/complex/>, or Canvas
- **Lectures:** MWF 9:00-9:50, LBR 248
- **Office Hours:** Mon 3-4, Tue 1:30-2:30, Fri 11-12
- **Textbook:** *Complex Analysis*, by Stein and Shakarchi (Princeton Lectures in Analysis Vol. II)

**Course Description:** This is a first course in the analysis of functions of a complex variable. While many concepts (sequences, series, limits, derivatives) mirror those from real analysis, the consequences of complex differentiability are strikingly different from the real case and have important applications throughout mathematics and beyond.

We will cover complex numbers; sequences and series; continuity; complex differentiability and the Cauchy-Riemann equations; complex line integrals and Cauchy's Integral Formulas; power series and analytic continuation; Laurent series and meromorphic functions; the residue theorem; and if time permits, additional topics such as the Gamma and Zeta functions, elliptic functions, the prime number theorem, or conformal mapping.

It is helpful, though not strictly required, to have had at least one semester of Real Analysis prior to taking this course; we will use results about continuous functions, sequences and series, power series, total derivatives and the inverse function theorem. If you have not had a rigorous treatment of these topics, make sure you come talk to me.

**Reading Assignments:** A reading assignment for each class will be posted on the course webpage and in the Canvas course prior to each lecture. This reading should be completed *before* the lecture. Unless otherwise specified, you will be responsible for all material in the reading assignment, even if it is not covered in lecture.

**Homework:** Homework problems will be assigned and collected on a weekly basis.

**Exams:** There will be two exams, one at the end of each module, either oral (if class numbers permit) or written. Provisional dates (which may be subject to change) are as follows:

- Exam 1: Friday, October 12
- Exam 2: TBD during finals week (December 10-14)

**Assessment:** Your course performance (Sat/Unsat) will be evaluated based on homework and exams, weighted equally (1/3 homework, 1/3 Exam 1, 1/3 Exam 2). Class participation and attendance will be reflected in the narrative evaluation.

**Policies:** Students in need of academic accommodations for a disability may consult with the office of Students Disability Services (SDS) to arrange appropriate accommodations. Students are required to give reasonable notice prior to requesting an accommodation. Students may request an appointment with SDS in-person (HCL3), via phone at 941-487-4496, or via email at [disabilityservices@ncf.edu](mailto:disabilityservices@ncf.edu).

No student shall be compelled to attend class or sit for an examination at a day or time when he or she would normally be engaged in a religious observance or on a day or time prohibited by his or her religious belief. Students are expected to notify their instructors if they intend to be absent for a class or announced examination, in accordance with this policy, well in advance of the scheduled meeting.