

# Syllabus – MATH 4180: Complex Analysis

## Spring 2022

*Lecture:* Tue, Thur 2:45pm - 4pm

March 10, 2022

### **Instructor:**

Benjamin Dozier

Email: [benjamin.dozier@cornell.edu](mailto:benjamin.dozier@cornell.edu)

Office: Malott 582

Office hours: Mon 4-5pm, Fri 3:30-4:30pm

(On Zoom through Feb 4, then in office. See Canvas announcement for Zoom link)

### **TA/Grader:**

Maria Oprea

Email: [mao237@cornell.edu](mailto:mao237@cornell.edu)

Office hours Zoom link: See Canvas announcement

Office hours: Mon, Wed 3-4pm.

(All Wed office hours and Mon 1/31 will be on Zoom. Later Monday OH will be held in Malott 218).

### **Format:**

Per university rules, the course will be held online, via Zoom, through Feb 3. Here is the link (also available in the Zoom tab in Canvas):

<https://cornell.zoom.us/j/92601160636?pwd=dnY1end1T3hHYU1wWkNSTEJPDkF2dz09>

After that (pandemic conditions allowing), lectures will be in-person in the assigned classroom, Malott 207.

### **Prerequisites:**

Analysis via one of MATH 2230-MATH 2240, MATH 3110, or MATH 4130, or permission of instructor. Students will be expected to be comfortable with proofs.

### **Textbooks:**

*Basic Complex Analysis, 3rd ed*, by Jerold Marsden and Michael Hoffman

### **Course Description:**

*From Course Bulletin:* “Theoretical and rigorous introduction to complex variable theory. Topics include complex numbers, differential and integral calculus for functions of a complex variable including Cauchy’s theorem and the calculus of residues, elements of conformal mapping.”

There will be an emphasis on geometric thinking. Additional topics we may cover:

- Cauchy-Riemann equations
- Harmonic functions
- Maximum modulus principle
- Contour integration

**Homework:** Weekly homework assignments will be the most important part of the course. You may, in fact are encouraged to, work on the problems with other students. You will write up your solutions by yourself either (i) electronically, or (ii) by hand (legibly), and then scan them (legibly).

Each homework assignment will be due on Tuesday before class.

All assignments will be submitted on Canvas.

**Prelim and Final:** There will be one in-class written prelim held during a class session.

Date: **Tue, March 22.**

There will be a written final during finals week in the registrar's allotted slot for this class.

Date: **Sat, 5/14, 9-11:30am**, Room: TBA.

**Grading:**

- Homework: 50%. The lowest score will be dropped (even if it is zero). In addition, you may turn in one homework up to 3 days late without penalty.
- Prelim: 20%
- Final: 30%