

COURSE INFORMATION

Math 158, Complex Analysis

THE BASICS

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Class meetings. Tue/Thu 10:30-11:45 (D+ block) in BP 7

Text. *Complex Variables and Applications*, 8th Edition, by Brown & Churchill

Website. <http://mduchin.math.tufts.edu/math158/>

WHAT IS THIS COURSE??

This is a first course in complex analysis, beginning from scratch with an introduction to complex numbers and developing a theory of functions, differentiation, and integration. However, the course will take a very geometric point of view and will emphasize *rigidity* phenomena in complex analysis (where very little information is needed to determine the properties of analytic functions). Very little background will be assumed (only multivariable calculus), and we will try to build up proof techniques over the course of the term.

This course interacts very well with the material from several other 100-level courses, such as Real Analysis, which includes topics in Topology, and Algebra (that is, Math 135 and 145). It does not matter which order you take these classes in; each will enrich the others.

Content. We will cover most of the first nine chapters of the book, possibly skimping on chapters 5 and 7. Refer to Topic List for details.

Format. The book has strengths and weaknesses: a strength is that it is very elementary and readable; a major weakness is that it lacks intuition, relying heavily on calculations. The lectures will focus on making the material visualizable, understandable, and accessible to intuition.

Homework will be assigned and due once a week, on Tuesdays. In addition, you will have sporadic in-class quizzes of just a few questions each. There will be one midterm exam, in class on Tuesday March 6. The final exam will be given as a take-home test if everyone agrees.

GRADING

Here is how your course work will be weighted out of 100 total points:

- Homework: 20 pts
- Quizzes: 10 pts
- Midterm: 30 pts
- Final Exam: 40 pts

Letter grades will be given out in an order determined by these scores: A means that you have shown proficiency in all the content, B is for adequate work with some strengths and some weaknesses in the major topics, and so on.

HOMEWORK POLICIES

You are encouraged to work together on homework assignments, but *you must write up your solutions independently*, clearly and legibly, showing all of your work. Homework assignments are due in class *at the beginning of class*. Because of the logistical difficulties of dealing with straggling assignments, *no late homework will be graded*. However, the lowest score will be dropped.

You are expected to staple your homework. There are staplers in the main office.

COMPUTERS

I will try to use computers in class to take advantage of the visual aspects of the subject, and I'll link to useful applets from the course page. Through this class, you all have access to Mathematica licenses for your personal computers. This could be very helpful to you in this class and others. I will also run a (strictly optional) workshop on LaTeX, which is a markup language used to type beautiful-looking mathematics.

ETC

- Check out the Learning Objectives for Mathematics courses at <http://ase.tufts.edu/faculty-committees/assessment/math.htm>
This course satisfies 1 (Basic understanding of higher mathematics), 2 (Written communication), and 6 (Problem solving skills). Many of you will take more advantage of the course resources and satisfy 3,4,5 as well (Oral communication, Research skills, Production skills-computer literacy).
- Please let me know if you are requesting an accommodation due to disability, such as extra time on exams. Tufts has a Disability Services Office that can help you get your needs met.