The basics

Instructor. Moon Duchin, moon.duchin@tufts.edu, BP 113

TA. Brendan Foley, brendan.foley@tufts.edu, BP 300

Class meetings. Tue/Wed/Fri 9:30-10:20 (C block) in BP 5

Text. *Basic Complex Analysis*, 3rd Edition, by Marsden & Hoffman

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. 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 Chapters 1 and 2 in detail. We will cover most of Chapters 3-5, and then selected topics from Chapters 6,7 if time allows.

Format. Like all textbooks, ours has strengths and weaknesses. Strengths include readability, Worked Examples, and often giving an intuitive proof before the technical proofs. The corresponding weakness is that the details can get gory. Lectures will focus on making the material visualizable and understandable, and on highlighting the big ideas.

Homework will be assigned for each section of the book that we cover, due 2 lectures after the topic was taught. This means roughly one assignment per week. In addition, we will have sporadic in-class quizzes of just a few questions each. There will be one midterm exam, in class on Friday March 15. 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: 30 pts
- Quizzes: 10 pts
- Midterm: 30 pts
- Final Exam: 30 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 sound 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.

Because homework is collected and returned in class and spends some time in various mailboxes, you have the right to use a "unique identifier" instead of your name in order to protect your privacy. Your educational record is privileged information under the federal Family Educational Rights and Privacy Act (FERPA), and using your name as identifier means that you opt out of being guaranteed confidentiality with respect to homework assignments and scores.

Computers

I will try to use computers in class to take advantage of the visual aspects of the subject, and I've linked to some 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.
  http://uss.tufts.edu/arc/disability/