Complex Analysis
MATH 352
Spring 2006
MWF 8:00–8:50 Thompson 316
Th 8:30-9:20 Thompson 316

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Course Overview and Text

Complex analysis is the study of functions for which each input is a complex number and each output is a complex number. After successfully completing this course, a student should

- be proficient with arthmetic computations and algebraic properties of complex numbers;
- make connections between algebraic and geometric views of complex numbers and complex functions;
- be able to state relevant definitions and prove statements involving limits and continuity of complex functions;
- be able to state relevant definitions and theorems, do computations, and prove statements involving derivatives and analyticity of complex functions;
- be able to state relevant definitions and theorems (including the Cauchy-Goursat Theorem and the Residue theorem), do computations, and prove statements involving complex contour integrals; and
- be able to use the tools of complex analysis in a variety of applications including the evaluation of real-valued integrals.

Multivariate calculus and linear algebra are prerequisites for this course.

The course text is *Complex Variables and Applications*, 7th ed., J.W. Brown and R.V. Churchill, McGraw-Hill, 2004.

Course Web Pages

Web pages for this course are located at

`www.math.ups.edu/~martinj/courses/spring2006/m352/m352.html`

You can get to this page by following links at `www.math.ups.edu/~martinj`. The web site will have a list of assignments and due dates. I will also post announcements and comments about questions or issues that come up in class. You should check the web site for new announcements several times each week. Class handouts will be available to download as PDF files if you lose your copy or miss class.

Grading, Coursework, and Policies

In class, we will discuss new material, respond to questions from reading the text, and work through assigned problems on which there are difficulties. When we discuss new material, the focus will be on "the big picture." That is, we will look at new ideas in their simplest form and how these ideas fit together. Often, we will not consider details and variations in depth during a first pass through new material. Your mastery of the details will begin outside of class with a careful reading of the text and work on the assigned problems. We will address the details by responding to questions on the reading and problems that you bring to class. You are expected to participate in class by being present (and alert), by responding to questions I pose, and by asking the questions that you have.

Outside of class, you should read the relevant sections of the text carefully. This will generally include working through the reasoning of arguments and filling in steps that are omitted in calculations. You should keep a list of specific questions from the reading and find answers to those questions either in class, with me outside of class, or with study partners.

Evaluated coursework will include homework problems, exams, and a comprehensive final exam.

I will assign homework problems from the textbook on which I expect you to spend considerable time and effort. I will assign selected problems to be submitted for evaluation. For these problems, your work should be in the conventional paragraph form using complete sentences that incorporate mathematical expressions. You should not get in the habit of focusing only on the problems designated to be submitted.

We will have four exams during the semester. You will need to demonstrate mastery of computational and proof techniques on exams. These will be a combination of in-class and take-home. I will give you at least one week notice before any in-class exam. The fourth exam will be in the last week of classes.

The final exam is scheduled for Monday, May 8 from 8:00-10:00 am. The final exam may include a take-home component.

To determine course grades, I calculate a total course score with homework problems weighted at 20%, , exams weighted at 60%, and the final exam weighted at 20%. I assign a preliminary course grade based on an objective standard (93.3-100% for an A, 90.0-93.2% for an A–, 86.7-89.9% for a B+, 83.3-86.6% for a B, etc.). I then look at each student's performance subjectively. Occasionally I will assign a course grade that is higher than the objective standard. For example, if a student has a grade of B according to the objective standard but has shown steady improvement, I might assign a course grade of B+.

Office Hours

I am generally available in my office for help several hours each day. I am often in my office during the day in hours at which I do not have a scheduled class, meeting, or other activity. You can see my weekly schedule at

`www.math.ups.edu/~martinj/schedule.html`

Feel free to come look for me. To be (almost) guaranteed that I will be in, come during one of the hours labeled as an "office hour." You can also call, send e-mail, or stop me after class to schedule an appointment for a specific time.

Important Dates for Spring 2006

Tuesday, January 24	Last day to add a course
Monday, January 30	Last day to drop a course without record
Monday, February 13	Last day to drop a course with an automatic W

Note that University policy mandates a grade of WF if you drop a course after Monday, February 13 unless "there have been unusual circumstances beyond the student's control and the student's work has been of passing quality." For full details, see the Academic Policies section of *The Logger*.