Math 352: Complex Variables

Syllabus: Winter 2012

Professor: Michael Dorff, 310 TMCB , 422–1752, mdorff@math.byu.edu
Office Hours: MWF 2:00-2:45pm
Class Meetings: 366 MARB, MWF 1:00-1:50pm
TA: Joe Keller
TA's Office Hours: M-F 12:00-1:00pm

Text: *A Modern Course in Complex Function Theory*, by Jerry R. Muir, Jr. This is a new text that is not yet printed. The author has offered us a free pdf version of the text and this is available on the course web site. Also, the BYU Bookstore has printed a bound version that sells for less than $15.

Course web site: All of the course content will be made available on the course web site. To access the web site, go to http://mathonline.byu.edu, log in with your route y id and password, and look for your course. It should have a title like

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Click on the course title. It may ask you for an enrollment key. The enrollment key is the last name of our TA, Joe Keller, all lower case. All content for the course will be posted on this web site. Also, grades will be available on this web site,

Course Objectives:

1. Development of general intellectual and mathematical ability, including
   (a) The ability to learn complex new concepts independently.
   (b) An ability to recognize and correct errors in your and others' work.
   (c) An ability to write arguments and mathematical computations correctly and accurately.
   (d) A mastery of logical reasoning and an ability to write correct proofs.
   (e) The ability and confidence to attack and solve an unfamiliar problem, and the discipline to keep working on a problem until you solve it.
2. Mastery of the "core topics" of complex analysis consisting of most of the material in chapters 1-7 of the text.

Prerequisite: Math 341 or concurrent enrollment.

Preparation Time: Adequately prepared students should expect to spend a minimum of three hours of work for each credit hour. This adds up to a minimum of 9 hours per week for this course. A minimal time commitment is likely to lead to an average grade B-/C+ or lower. Much more time may be required to achieve excellence.

Reading: We do not have enough time to cover all of the reading material in class before the homework is due. You are expected to read the book and carefully study the examples yourself before the lecture on that material. You get more learning for your money if you read first and ask questions in class, than if I waste all of your class time reading the book to you or lecturing to you about things you could read. I will instead try to answer your questions, help you see why things are important, and fill in places that the book doesn't make clear.

Homework Assignments: Homework will be assigned daily and will be due by 5:00 pm the next class period after it is assigned. Late homework is worth half credit and must be submitted within one week of the original due date to receive any credit. I encourage you to work with other students in the class by discussing the problems. However, the assignment that you hand in must be your own work. The homework assignments will total 150 points.

Exams: There will be 2 mid-term exams and a final exam, each worth 100 points:

Thu.-Fri. Feb. 9 - 10	Exam 1 in the testing center
Thu.-Fri. Mar. 22 - 23	Exam 2 in the testing center
Sat. Apr. 14, 2:30 pm - 5:30 pm	Final Exam in our classroom

Project: During the course, you will complete a small project that will be worth 50 points. This project will be an exploration of a current research area in complex analysis suitable for undergraduate students. The topics include: (a) complex dynamics; (b) minimal surfaces; (c) flow problems; (d) harmonic univalent mappings; (e) mappings to polygonal domains; and (f) circle packing. The topics are discussed in written chapters that will be made available to you. Along with each chapter, there is a set of Java applets that will help you explore the topic. The chapters and applets are available online at http://www.jimrolf.com/explorationsInComplexVariables.html; you will need the most current version of Java on your computer to run these applets.

Starting Sat. Jan. 14 (due by 5 pm), you will send me an email with a MSWord or pdf (produced from latex) attachment describing your progress on the project. The first email will tell me which topic you will be investigating–that is it! Then each subsequent week (due by Sat. at 5 pm) for the next 10 weeks you will send me an email: (1) stating which pages you read during that week (you will need to read at least 5 new pages each week); (2) stating which applet explorations you did (if there is an *Exploration* in the reading, you are expected to do it); and (3) writing a description of at least 200 words of what you read (e.g., a summary of the material you read and something you found interesting). Each of these emails will be worth 5 points.

Extra credit: You can earn extra credit by attending any of the talks listed below (or any other math talks I approve) and sending me an email telling me at least one thing you learned from the presentation. Extra credit replaces one homework grade that has the lowest score that is not a 0.

- Tue Feb 28, 4:00-4:50 pm in 1170 TMCB, Barry Cipra.
- Tue Mar 13, 4:00-4:50 pm in 1170 TMCB, Ed Burger.

Grading: Letter grades will be assigned as follows:

		B+	= 89-87%,	C+	= 79-77%,	D+	= 69-67%,				
A	= 100-93%	B	= 86-83%,	C	= 76-73%,	D	= 66-63%,	E	= 59-0%.		
A–	= 92-90%	B–	= 82-80%,	C–	= 72-70%,	D–	= 62-60%,				

Preventing Sexual Harassment: Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education and pertains to admissions, academic and athletic programs, and university-sponsored activities. Title IX also prohibits sexual harassment of students by university employees, other students, and visitors to campus. If you encounter sexual harassment or gender-based discrimination, please talk to your professor; contact the Equal Employment Office at 801-422-5895 or 1-888-238-1062 (24-hours), or http://www.ethicspoint.com; or contact the Honor Code Office at 801-422-2847.

Students with Disabilities: BYU is committed to providing reasonable accommodation to qualified persons with disabilities. If you have any disability that may adversely affect your success in this course, please contact the Services for Students with Disabilities Office at 422-2767. Services deemed appropriate will be coordinated with the student and instructor by that office.