Math 368: Complex Variables **Spring 2026**

Russ Gordon Office: 221 Olin Hall Hours: 3:00-4:00 pm M–F in Olin 305

Complex analysis is a branch of mathematics that studies complex numbers and functions defined on sets of complex numbers. A complex number is a number of the form $a + b\,i$, where a and b are real numbers and i is a symbol that represents the "number" $\sqrt{-1}$. Although these numbers are sometimes referred to as imaginary numbers, their metaphysical existence is no more in doubt than other number systems. However, functions of a complex variable are more complicated than those defined for a real variable. In calculus, you have considered functions defined on sets of real numbers, examining their graphs and learning how to differentiate and integrate such functions. In this course, we seek to extend these ideas to functions of a complex variable. As we will see, there are a number of dramatic and fascinating differences between functions of a real variable and functions of a complex variable. In addition, some problems in engineering and physics may be represented and solved using the properties of complex variables. Although we won't have time to do many applications, we will at least get a glimpse of how complex variables can be of assistance in solving physical problems.

The homework, assigned each class period, will involve reading some parts of the textbook (the third edition of Saff and Snider's *Fundamentals of Complex Analysis*) and working on problems. We will hopefully spend a fair amount of class time discussing key concepts and homework problems, with students occasionally presenting solutions on the board. There will be sporadic homework assignments collected during the semester; some of these may be akin to take-home exams, meaning that you must work independently on these assignments (that is, no discussion with other students, no searching other texts or the Internet, etc.) I expect that your solutions to these problems will be written neatly, using correct notation and containing complete sentences when appropriate. We will also have occasional in-class quizzes.

There will be three in-class exams; Feb. 20, Apr. 10, and May 6. The final exam is scheduled for the morning of Friday, May 15. Each of the in-class exams is worth 100 points and the final exam is worth 125 points. Your grade for the course will be based on a 550 point scale; the 425 points mentioned thus far and 125 points from all of the quizzes and collected homework assignments. There is no predetermined grading scale; I will let you know where you stand in terms of a letter grade at several points during the semester.