

# Syllabus—Math 562, Spring 2019

## Functions of a Complex Variable II

INSTRUCTOR: Matthew Blair

EMAIL: [blair@math.unm.edu](mailto:blair@math.unm.edu)

OFFICE: SMLC 330

MEETING TIMES/LOCATION: Monday, Wednesday, and Friday 10-10:50am in SMLC 352.

COURSE WEBSITE: [www.math.unm.edu/~blair/math562f18.html](http://www.math.unm.edu/~blair/math562f18.html)

OFFICE HOURS: 3:30-5pm Mondays and 2-3:30pm Tuesdays. Also by appointment.

COURSE CREDITS: 3 credit hours.

PREREQUISITES: Math 561 is a firm prerequisite. As with most graduate courses in mathematics, students are expected to have a strong background in proof writing and mathematical rigor. If you did not take Math 561 in Fall 2018, please consult the instructor to discuss your background.

TEXT: *Function Theory of One Complex Variable*, Third Edition, by Robert E. Greene and Steven G. Krantz. Published by the American Mathematical Society. The text will be supplemented by other resources on occasion.

### Course Description

From the Catalog: *The Mittag-Leffler theorem, series and product expansions, introduction to asymptotics and the properties of the gamma and zeta functions. The Riemann mapping theorem, harmonic functions and Dirichlet's problem. Introduction to elliptic functions. Selected topics.* The goal will be to prove the Riemann mapping theorem as in Ch. 6 of the text and cover most parts of Ch. 7-11, 15 in the text with other topics as appropriate.

### Grading Scheme

Homework: 50%, Exams: 50%. Requests to change grading modes to Audit or Credit/No-Credit will be considered, but these should be fully processed before May 3, 2019, the last day of class.

### Exams

There will be two take home exams due on Friday, March 8 and Friday, May 10. Information regarding the content of the exams will be provided in class as the time approaches, but expect the final to be cumulative.

### Homework

Homework will be assigned on a weekly basis, typically collected on Wednesdays, with possible exceptions on exam weeks and holidays. Assignments will be handed out in class and posted on the course website. Other important considerations and policies for homework are below.

- **If you are stuck on a problem, get help in office hours.** This is what office hours are for! Be prepared to have a discussion concerning the progress you have made on the problem.
- **Each assignment must be written up on your own and in your own words.** You may discuss homework problems with others, but your own understanding of the solution

must be evident in your written work. **Assignments that are excessively unoriginal will not go unnoticed.** No collaboration is permitted on the exams.

- **Policy on responsible internet use.** You may use the internet as well as other texts to supplement your reading and enhance your understanding of the material. **However, you may not consult solutions written by others for the purpose of preparing a graded homework set or take home exam.** This includes solutions manuals for the text and solutions found or solicited on internet forums. Such practices are counterproductive towards your learning and will be treated as a violation of the student code of conduct.
- **When writing a proof, limit yourself to theorems and definitions from the textbook and class.** Much of the homework is designed to see what can be solved using only the basic principles introduced to that point. Appealing to theorems from outside these two resources defeats this purpose and does not reflect your comprehension.
- **Late homework is not accepted.** Homework is expected to be submitted during class on the day it is due. However, the two lowest homework scores will be dropped at the end of the semester.
- **Presentation matters.** Your homework will be graded on the clarity and cogency of your mathematical reasoning. Take care to hand in a neat, legible assignment and **staple the pages together in the upper left hand corner.** Provide enough room for comments and other marks in the margins. Assignments not in compliance are subject to point deductions. The instructor does not supply a stapler for homework sets.
- **Hand in a *hard copy* of the assignment at the beginning of class.** Electronically submitted work is not accepted unless prior arrangements are made with and agreed to by the instructor.
- **You are expected to read the textbook outside of class.** Reading sections in the book before they are discussed in class will help you to get the most out of class time and to stay on top of the material.
- **Don't neglect the "On your own" problems.** You will often be given homework problems which you are to do on your own, i.e. it will not be collected for a grade. These are typically assigned as problems of significance to think about without overloading an assignment with too many written problems.

### Other expectations

- **You are expected to attend class.** Absences should be rare and warranted. If circumstances are causing you to miss a substantial amount of class, you should contact the instructor as soon as possible. Be ready to engage yourself in the lecture every class period.
- **You are expected to arrive to class on time.** Class will start promptly at 10am. Being punctual is important so that we may conduct important business at the start of each class period and so as not to disrupt the instructor or your classmates.
- **No extracurricular cell phone use during class time.** If an emergency requires you to answer a call or text a message please handle this outside of the classroom. Phones should be silenced during class time.

## Email

On occasion, important announcements may be communicated through email. It is your responsibility to ensure that you either check the email account on file with University regularly or have these messages forwarded to an account which you do check regularly.

Email is a good way to communicate with the instructor during the working day, but please do use good email etiquette, including the use of greetings and topical subject headings. These are important to organize messages and distinguish your message from spam. The instructor will make an effort to answer mathematical questions over email, but given the sophistication of the subject, this is not always possible, particularly if there are several questions or if the answer is involved.

## Academic Integrity

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

## Title IX Statement

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see pg. 15 [www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf](http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf)). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity ([oeo.unm.edu](http://oeo.unm.edu)). For more information on the campus policy regarding sexual misconduct, see: [policy.unm.edu/university-policies/2000/2740.html](http://policy.unm.edu/university-policies/2000/2740.html)

## Accommodation Statement

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructors attention, as he/she are not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information.