

Math 352 Complex Variables Syllabus

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Office hours: Tuesday 2-4, and by appointment.

Course information: Available on [Blackboard](#) and the course website, <http://ecademy.agnesscott.edu/~jwiseman/mat352>.

Required material: The textbook is Fisher, *Complex Variables*, 2nd ed., available in the bookstore.

Plan: We'll cover most of chapters 1-3 and the beginning of chapter 4. Topics include the algebra, geometry, and topology of complex numbers and the calculus of complex analytic functions. There's a more detailed schedule at <http://ecademy.agnesscott.edu/~jwiseman/mat352/schedule.html>, but it's subject to change.

Homework: By now you've probably figured out that working problems is mostly how you learn math. There will be homework assigned nearly every week, and many assignments will have two due dates: one for the seminar day (see below), and one to turn in the finished assignment. I strongly encourage you to work in groups, but you must write up the results yourself. Assignments will be posted on [Blackboard](#) and at <http://ecademy.agnesscott.edu/~jwiseman/mat352/assignments.html> – you are responsible for checking the assignments, as I won't give them in class.

Seminar days: Roughly every other Monday will be a seminar day (see the [schedule](#) for details). *Attendance is mandatory on seminar days.* On these days we (by which I mean "you") will discuss the week's assignment. You don't need to have finished all the problems by the seminar day, but you do need to have at least tried all of them. **By 5:00 the evening before the seminar date**, email me a listing of:

- which problems you know how to do
- which problems you've made progress on, but haven't finished
- which problems you haven't made progress on.

(Part of your homework grade will be based on these lists, so the third category should be pretty small.) On the seminar day, I may ask you to present problems that you know how to do or have made progress on; I won't ask you for problems that you haven't made progress on. (I may or may not tell you in advance which problems you'll be presenting.) Your finished assignments should be polished, but seminar days are about the messy creative process of mathematics - first drafts, half-formed ideas, getting stuck, getting unstuck, and giving and receiving criticism and ideas for improvement.

Take-home quizzes: Roughly twice in every chapter there will be a short (~15 minutes) closed-book take-home quiz on the definitions and theorems that we've covered. If you've been keeping up with the reading and homework, you should have no problem with the quizzes.

Honor code and group work: All students are expected to follow the honor code throughout the semester; all exams and assignments should be pledged.

I strongly encourage you to work on the homework in groups. I suggest that you work on the problems by yourself first, making a note of anything giving you trouble; then meet with your group and work through the remaining problems together; and finally write up the solutions by yourself. Every group member must write up her own solutions independently; just copying the group's answers is plagiarism and is unacceptable.

Getting help: As Talking Barbie says, "Math class is tough." (Unless she's the hacked version - then she says, "Eat lead, Cobra.") Chances are that sooner or later you'll get stuck on something, so don't get frustrated. Think hard, and if you're still stuck, do something else for a while. (It's amazing how often that works.)

My office hours are above - these are times when I'm guaranteed to be in my office and willing to talk. If you want to see me at other times, the best thing to do is to set up an appointment with me by email or after class. Of course, you're welcome to just drop by my office, as long as you don't mind if I'm not there or don't have time to talk.

Finally, I can't emphasize enough that your classmates are your best source of help.

Course goals:

- develop good skills at working with the field of complex numbers and the complex transcendental functions, and to appreciate their value in related courses and topics
- develop a rudimentary understanding of the topology of the Euclidean plane, and of how multi-valued functions can be made meaningful within this context
- understand the basic properties of analytic functions,

- including Cauchy's Theorem and the Residue Theorem
- understand a proof of the Fundamental Theorem of Algebra
- broaden your understanding of power series, and to appreciate their role in representing analytic functions
- see some applications of complex analysis to real analysis, to appreciate the difference between the two central ideas of calculus (differentiation and integration) in these two settings,
- learn about some applications to the solution of physical problems.

Exams:

- First midterm: Monday, 2/16 (take home).
- Second midterm: Friday, 3/27 (take home).
- Final exam: self-scheduled.

Assessment: Each midterm 15%, take-home quizzes 10% total, homework 30%, final exam 30%.

Late work: Late work won't be accepted, and you won't be allowed to make up missed exams, except under very exceptional circumstances (e.g., the sasquatch attacks - and even then you should get a note from the sasquatch). In the case of a conflict that you absolutely can't resolve (for example, a religious holiday), you may arrange to take a midterm exam early.

Attendance: I expect you to be at every class, on time.

Attendance is mandatory on seminar days. Tardiness or absence on other days will have no (direct) effect on your grade.

Course evaluation: Your feedback on the course is extremely valuable to me, the math department, and the administration. In particular, I take your comments very seriously and use them to improve the course the next time I teach it. You are responsible for completing an evaluation of the course at the end of the semester. I will provide more details later.