Syllabus: (Math 347 E1, Fundamental Mathematics, Fall 2019)

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Instructor: David Lutzer; office = Illini Hall 24, Cubicle 3; e-mail = "dlutzer@illinois.edu". If you want to see the kinds of research I have been interested in, go to www.math.wm.edu/∼lutzer

Office hours: I will be available in my office on MWF from 10-11:50. Other office times are available by appointment. For questions, you can also reach me by e-mail (dlutzer@illinois.edu). There will also be a Math 347 tutoring session (run by graduate students) from 4-6 pm in Altgeld room 347 on M,T,W,Th.

Classroom and Class times: Altgeld Hall 243, MWF 1-1:50 pm.

Textbook and class notes: The textbook is a Course Packet available at the bookstore. The title is *An Introduction to Abstract Mathematics* by Donaldson and Pantano. Toward the end of the course there will be additional on-line notes.

Exams: There will be three in-class mid-term exams (Wednesday, Sept 18, Wednesday, Oct 23, and , Wednesday, Nov 13) and one final exam(date to be announced by the Registrar). *Do not buy any tickets before the final is scheduled. It is very difficult to reschedule a final exam.* All exams will be closed book and closed notes, and electronic devices cannot be used during exams. Midterm exams can be rescheduled due to UIUC-related duties, religious observances, or if you have at least two other exams on the given day, and provided you *contact me at least a week in advance* with suitable documentation of the conflict. Normal UIUC academic integrity policies apply to all exams.

Homework: Weekly homework will be assigned and graded. The first HW is due on Friday September 6. Normally homework will be posted on our Compass website on Friday and due in class on the next Friday. Do not start on your M347 homework on Thursday night and expect to complete it by class time on Friday. Because the lowest HW score will be dropped, late homework is <u>not</u> accepted unless we have agreed in advance on an alternate due date.

I encourage you to work together on homework problems, but each student must write up and submit his/her own homework. Clarity of presentation (which includes correct English and full-sentence explanations) will count. Probably you can find homework solutions in books or on line, but copying such solutions will not prepare you for exams. Instead, struggle to find the solutions yourself or in your homework group.

Grading: By the end of the semester, you will have a possible total of 600 points in our course, and your final grade will be determined on the basis of your point total. The possible 600 points in the course will be divided as follows: Homework (100 points, and if the individual HW points do not add to exactly 100 points by the end of term, I will linearly convert them to a 100 point scale. We will drop the lowest HW score); Midterms (300 points); and the final exam (200 points). To estimate your grade during the semester, think of 90-100% as being an A-type grade, 80-89% as a B-type grade, etc. In addition, B-plus grades will be 87-89%, B grades will be 83-86%, and B-minus grades will be 80-82%.

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What is the course about? Unlike earlier mathematics courses you have had, this course focusses on the reading, understanding, and writing of proofs. Along the way, you will learn some really important new mathematics, but the goal of our course is for you to gain experience and confidence in proving things. Clarity of expression is crucial. On exams and homework, you will find yourself writing in English much more than in formulas, and a very good technique for deciding whether what you have written makes sense is to read aloud exactly what you have written. The mathematical language we will develop is used in all of your subsequent mathematics courses, and all later university mathematics courses will emphasize why something is true and not just that it seems to work. This course is a bridge to that new world.