Math 395

Honors Analysis I

MWF 2:30-4

MW in EH1084, F in EHB844

Fall 2024

Professor: Alex Wright. Call me Alex!

Email: alexmw@umich.edu

Office: EH 5848

Course Information

Website: Canvas.

Office hours: Tuesdays 9:15-10:05am, Wednesdays 1:30-2:20pm, Fridays 1:30-2:20pm.

Course assistants: This course as two assistants, who will grade the homework and who will each have one office hour per week:

Eren Buyukbozkirli (ebuyukb@umich.edu, office hour Monday 6-7pm), and

Yuyang Wang (wangyy@umich.edu, office hour Thursdays 1-2pm).

Office hour locations:

Mondays 6-7: 4096 EH

Tuesdays 9:15 - 10:05: Alex's office or 5822 EH

Wednesdays 1:30 - 2:30: 4088 EH

Thursdays 1:00pm - 2:00: B743 EH

Fridays 1:30 - 2:20: B743 EH

Required text: Analysis on Manifolds, by Munkres. A pdf is available for free via the library website. We will cover roughly chapters 2-5; the remaining chapters will be covered in 396.

Midterm exam: Thur Oct 17, 6:30-8:30pm.

Final exam: Wed Dec 18, 1:30-3:30pm.

Prerequisites: This is one of the most difficult courses in the undergraduate math curriculum. (I hope it will be less work than 296, but it may be more conceptually difficult.) The formal pre-requisite is Math 296 or a B or better in Math 297, and all students must have at least this background. Students who received less than an A- in Math 296 or Math 297 are strongly encouraged to talk to me in the first week of class to discuss the course. Students who do not have the pre-requisites (for example transfer students with hopefully equivalent coursework elsewhere) should keep in mind that it is not possible to succeed in 395 without a strong understanding of all the pre-requisite material, and are also encouraged to talk to me in the first week of class.

Homework: The main parto is due weekly on Fridays at 7pm via gradescope. The bonus is due 24 hours later (Saturdays at 7pm) also on gradescope.

The lowest two homework scores will be dropped, but late homework will not be accepted except under extenuating circumstances that affect more than two weeks of the semester, such as extended illness.

Homework subsubmission: It will be possible to resubmit homework.

Only non-bonus questions that you did answer on your original homework submission may be resubmitted, and in this case the grade on that question will be replaced with the average of the original grade and the new grade. In other words, you may recover up to half of the points originally lost, with the exception that if you did not originally submit an honest effort to solve the problem (at least writing your ideas and where you got stuck) then that problem will not be regraded.

Resubmissions are due 2 weeks after the homework is due; in instances where homework is returned to you more than 10 days after it was due this will be extended.

To resubmit a question, you should first create a sharable link to a pdf of your revised solution. You can do this using dropbox, google drive, etc. Then use gradescope to submit a regrade request and include the link to your revised solution. You must do this seperately for each question you wish to resubmit.

Inquiry based learning: Fridays will be devoted primarily to measure theory. You will work in small groups on worksheets and present solutions at the board. You will be responsible for writing up some of the solutions.

Final grade calculation: Three quizzes on IBL material, 15% total (5% each). IBL participation and write ups, 15%. Final exam 30%, midterm 15%, homework 25%, bonus homework 10%. (With the bonus this add up to 110%.)

Final grades will be determined from the raw scores using cutoffs. Guaranteed minimum grades are based on the following scale: A (93 - 100), A- (90 - 92), B+ (87 - 89), B (83 - 86), B- (80 - 82), C+ (77 - 79), C (73 - 76), C- (70 - 72), D (60's), E (< 60). The final curve might well be more generous than this depending on the difficulty of homework and exams, but it will not be less generous. Typically I adjust the cutoffs so as many cutoffs as possible lie in "gaps" in the grade distribution, so as much as possible students with extremely similar raw scores get the same letter grades. Often I adjust some cutoffs down if I believe a student knows the material well should get a higher grade. All this happens before final grades are announced, and except in situations where an error has occurred final grades will not be changed after they are announced.

Part marks: Although minor arithmetic mistakes etc may sometimes be forgiven without penalty, generally speaking the number of part marks available may be significantly less than you may be used to. This is to encourage you to develop mastery of the course material, and also reflects my intention to primarily set problems that can be solved with a good understanding of the course material. I try to avoid trick questions or questions that require ideas or techniques not covered in class. (This does not apply to bonus questions, which may be very challenging.)

Questions: Asking questions in class is strongly encouraged! If there is anything I can do to make you more comfortable asking questions in class, please let me know. Also ask me questions in office hours. Answering math questions by email doesn't work so well though, so it's better to ask "in person".

Emails: I will try to respond to emails within 48 hours.

Two way communication: Learning cannot succeed without two way communication between the instructor and the students. In addition to asking questions, please feel free to let me know what you are having difficulty with and how the course and homework are going for you at any time.

Environment: Please strive to contribute to a positive learning environment for everyone. It is important to be colligial and helpful to your peers; to give everyone a chance to talk when working together; and to reflect the mindset that a big part of learning math is having the bravery to ask questions and to be be wrong. (Note that if you ask me to write a letter of recommendation for you in the future, the letter will address your ability to work well with others as well as the mastery of course material you achieved.)

Cheating: Discussing homework problems with your colleagues is encouraged, but you must write up solutions in your own words. Reading a complete solution, either online or written by a colleague, is cheating, as is showing one of your colleagues your own complete solution. Using any websites or resources that haven't been explicitly approved on exams or homework is also cheating, and students should be aware that it is often easy to find suspicious activity online, and that LSA has agreements with some websites to trace suspicious activity. Any situation where it is possible that cheating has occurred will be referred to the appropriate dean for investigation. If you have any questions about what is allowed, please ask.

Students with documented disabilities: If you think you need an accommodation for a disability, please let me know as soon as possible. In particular, a Verified Individualized Services and Accommodations (VISA) form must be provided to me at least two weeks prior to the need for a test/quiz accommodation. The Services for Students with Disabilities (SSD) Office issues VISA forms.